BUTANE-PROPANE News

OCTOBER 1961

Load Building Issue

A CHILTON () PUBLICATION

HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

KNOWN

To Your Customers for

RELIABILITY, QUALITY, SERVICE With the Winter Season

almost here . . .

BE PREPARED

take full advantage

of our attractive

branded program.

Call our nearest

sales office

TODAY



LP-Gas

WARRENGAS



WARREN PETROLEUM CORPORATION

DISTRICT SALES OFFICES

COLUMBIA, S. C. • FT. WORTH, TEXAS • MIDLAND, TEXAS NEW YORK, N. Y. • HOUSTON, TEXAS • OMAHA, NEBR. JACKSON, MISS. • ST. LOUIS, MO. • LOUISVILLE, KY. TAMPA ELA • MINNEAPOLIS MINN.

FIELD REPRESENTATIVES

BRYN MAWR, PA. • ATLANTA, GA. • NEW HAVEN, CONN. MONTGOMERY, ALA. • TOLEDO, OHIO • FOND DU LAC, WIS. NASHVILLE, TENN. • SPICER, MINN. • GARDEN CITY, KANS.

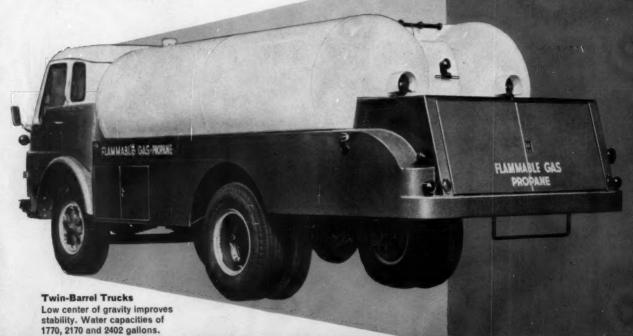


are yours on Hackney trucks

Fastest practicable pumping rates on the Hackney truck of your choice mean more stops per day, more profit to you. At the Pressed Steel Tank LP-Gas laboratory, we've tested all known combinations of pumps and piping systems. We can supply the pump and plumbing you need to earn the maximum profit with your Hackney truck. It's another example of the unsurpassed quality and service you get from Pressed Steel Tank Company. Call your Hackney representative for details or write directly to us.

FLAM MABLE GAS-PROPENT

Single-Barrel Trucks Designed to speed local deliveries. Water capacities of 2500 and 2800 gallons.



Pressed Steel Tank Company

1487 South 66th Street, Milwaukee 14, Wisconsin
Branch offices in principal cities

GAS CONTAINERS FROM ONE POUND TO 30,000 GALLONS







METERED LP-GAS SERVICE REDUCES COSTS-BUILDS SALES FOR FUELANE

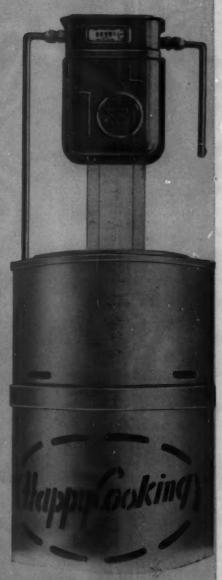
By providing metered LP-Gas service to more than 200,000 Happy Cooking consumers, Fuelane Corporation, Liberty, New York, is building more sales volume than ever before from Maine to Maryland. This "citytype" method of accurately measuring LP-Gas gives increased customer confidence, and for Fuelane it reduces expensive cross-hauling, out-of-gas calls, and accounts receivable. The many advantages of metered service make it one of Fuelane's most effective operating tools. Fuelane uses American Meter Company's WC-45-LPG Welded Steelcase Meters.



Time-tested features pioneered by American[®], plus many refinements in design, are incorporated in the WC-45-LPG Meter to make it ideal for average domestic loads. It has an internal, counter-type index protected by a clear plastic cover, Duramic diaphragms and oil impregnated porous bronze bearings. Rated capacity is 45 cfh propane, 40 cfh butane at ½-inch w.c. differential, with 5 psi working pressure. For full information write for Bulletin 316.







GEMERAL SALES OFFICE: Philadelphia 16, Penne. « Albany Atlanta « Baltimore » Birmingham « Boston » Chicago » Dallas Denver » Houston « Kansas City » Los Angeles « Minneapolis New York » Omaha » Pittaburgh » San Francisco » Seattle Tulsa « Wynnewood

IN CANADA: Canadian Meter Company, Ltd., Milton, Ontario Calgary . Edmonton . Montreal . Ragina . Vancouver

YOU CAN COUNT ON POWELL VALVES

Performance proves it, year after year—you can count on Powell Valves to help you solve the toughest flow control problems handling butane, propane and other hydrocarbons.

This truly dependable performance results from many things—among them Powell's engineering know-how, accumulated during 115 years of valve manufacture . . . and tested designs to meet the

requirements of liquified petroleum gas service, approved by Underwriters' Laboratories, Inc.

Then, too, you can count on getting the Powell Valve you need, when you need it. That's because Powell maintains a network of distributors backed up by factory inventories, warehoused "ready to go."

Get the full story from your nearby Powell Valve Distributor, or write us direct.



115th year of manufacturing industrial valves for the free world

POWELL LPG VALVES

THE WM. POWELL COMPANY CINCINNATI 22, OHIO



CONTENTS . OCTOBER 1961



Volume 23 - Number 10

Load-Building Features

Eight industrial market fact sheets	40						
Scrap	41						
Lumber	43						
Roofing	45						
Paving	47						
Plumbing	49						
Auto repair	55						
Ceramics	57						
Metalworking	61						
Metalworking	01						
Unigas doubles its gallons-per-mile deliveries	35						
It has revamped its delivery procedures, refurbished its trucks. William W. Clark	38						
How Unigas upgraded its fleet	30						
LPG-ethane sales rose 7 per cent in 1960, says BuMines Most of the gain was in domestic uses							
Don't fall into the "convenience and necessity" trap! Do you really want to be a utility? A. F. Dyer	68						
Will fuel cells make propane the power source of the future? Harvard students seem to think so! Robert Clay	74						
Cylinders and tanks getting smelly? Here's how to decodorize them.	72						
In Florida's groves, one customer equals 70,000 gal per year Agricultural machinery fleets keep this dealer in business. Harry J. Miller	93						
Advertisers' Index	98						
Association News							
Behind the Scenes 4 New Products and Free Literature							
Beyond the Mains	88						
Calendar 100 The Industry in Action	10						

Power

Features Digest

Departments

BEHIND THE SCENES

A CHILTON PUBLICATION

WILLIAM W. CLARK: EDITOR

Robert Clay: Managing Editor
Lynn C. Denny: Associate Editor
William T. Harper: Eastern Editor
Carolyn Thabet: Assistant Editor
Lester L. Luxon: Technical Editor
Raymond A. Grote: Art Editor
Nell R. Regelmbal: Washington Editor
Lobert Gunning: Readability Consultant
John H. Kofron: Research Director
John H. Kofron: Research Director

BUSINESS

FRANK M. CHAPMAN: PUBLISHER Gilbert Bowman: Promotion Manager Roberta Conoway: Production Manager Gerald N. Smith: Circulation Manager

ADVERTISING OFFICES

New York (17), 100 E. 42nd St.
Richard Duffy, OXford 7-3400
Chicago (1) 360 N. Michigan Ave., Suite 41
Richard L. DeMuesy, Rondolph 6-2166
Cleveland (15) 930 B. F. Keith Bidg.
Frank Enright, Joseph R. Geryfs,
SUperior 1-2860

Dalles (6) 199 Meadows Bidg. William J. Smyth, EMerson 8-4761

Atlanta (9) Ga.
1776 Poachtres St., N.W.
John W. Sangston, 875-1255
San Francisco (3) 1385 Market St.
Robert Coburn, UNderhill 1-7107
Les Angeles (57) 198 So. Alvarado St.
Lerry Jackson, DUnkirk 7-4337
London S.W. (1), England
47.46 Jerryun S. St. James

BUTANE-PROPANE News is published monthly. Capyright 1961 by Chilton Company, Chestnut and 56th 5ts., Philadelphia 39, Pa. Subscription prices—United States, U. S. possessions and Canada; one year 52, two years, 53; Mexica, South and Central America, and Caribbean area: one year, 53; two years, 55; all other countries, \$10 per year; all subscribers authide the LP, gas industry, \$10. Single capy price within the United States, U. S. possessions, and Canada, 50s. Controlled circulation postage paid at Philadelphia, Pa. Member of Liquefied Petroleum Gas Association, National I.P. Gas Council, National Fire Protection Association. Available omicrofilm.

G. C. BUZBY, President

Vice Presidents: P. M. Fahrendorf, Leonard V. Rowlands, George T. Hook, Robert E. McKenno. Treasurer, Stanley Appleby; Secretary, James A. Montpomery; Directors: Maurice E. Cox, Frank P. Tighe, Everit B. Terhune, Jr., Russell W. Case, Jr., Charles A. S. Helnie, John H. Kofron, George E. Cameron William H. Vollar.

I. C. Holloway, Asst. Secretary.

Editorial and advertising offices: 198 So. Alvarado St., Los Angeles 57 Phone DUnkirk 7-4337







Fifty-one years of service

Last July, there was a big oldtimers celebration and parade in the desert community of Palmdale, located in the Antelope Valley, a few miles northeast of Los Angeles.

In view of the fact that the L.P. gas industry will next year celebrate its 50th anniversary, it was most fitting that an entry of Imperial Gas Co. (which headquarters in Los Angeles) should carry off second prize. The theme of Imperial Gas' entry was its long record of service. In order of progression, first came a mule hauling a two-wheeled cart, to which a pair of cylinders were strapped in crude fashion; next was a 1933 Ford Model C pickup truck, holding a full complement of cylinders; bringing up the rear was a brandnew 2300-gal. tank truck, the latest thing in Imperial's Valley fleet.

In the parade program, Imperial Gas billed itself as "the oldest bottled gas company in the world," its entry portrayed "51 years of service since 1910."

Fifty-one years? Can it be that Imperial Gas is older than the industry to which it belongs?

Yes, it can, for the industry's age is actually only a matter of arbitrary definition. When the LPGA and the Council settled on 1962 as the Golden Anniversary year, they were using as an arbitrary birthdate the first installation of domestic gas service, which took place at the Gahring home in Waterford, Pa., in 1912. But Imperial, on the other hand, traces its lineage back to the first harnessing of LPG, which took place in 1910 at the Sistersville, W. Va., plant of Riverside Oil Co.

While Imperial Gas was not started in California until the 1920s, its founders were the Kerrs, A. N. and his cousin C. L. Both were involved in the early experiments and in the first marketing efforts (they were both officers in the American Gasol Co., which sold the first gas to the Gahring home).

So Imperial Gas does have a good claim to being the world's oldest bottled gas company in the world, even though that makes it older than the industry itself.

As P. S. Harper, Jr., wrote in our April, 1961, issue, "Probably no major industry in America has more birthdates attributed to it than ours!" How true!

In a way, it's just as well. The more Golden Anniversaries the industry can celebrate, the more publicity it will receive, and the more aware people will become of L.P. gas. That, after all, is the idea behind any such celebration.



Fifty-one years of Rockgas service were portrayed in this prize winning entry in the Antelope Valley (Calif.) parade last summer. Imperial Gas Co., the sponsor, traces its antecedents back to the first experiments in harnessing LPG for commercial use.

From selection of materials to the final testing,
Trinity gives microscopic attention to every particular. The fine details add up to "extra" quality LPG. Examine Trinity products for yourself
...and see the difference.



STEEL COMPANY, INC.

PRODUCTION

ESCAPES

EYE

Financing to suit your needs.

Petgas

SEND FOR QUICK INFORMATION ABOUT TRINITY
TRANSPORTS STORAGE TANKS DELIVERY TRUCKS DOMESTICS
(NEW AND USED)

DALLAS, TEXAS





Here's a solid workbench to speed all cutting, threading and reaming out on the job. No other vise offers as many work-saving features as this No. 40-A Tristand Yoke Vise. • Big, rugged malleable vise base has 3 bending grooves, 6 tool slots, rear pipe rest and a ceiling brace screw for absolute rigidity if legs aren't bolted down. • Base overhangs front legs for clear tool swing. • Extra-large yoke latch opens for easy, fast insertion of long pipe lengths. • Replaceable LonGrip jaws give, slip-proof grip. • Handy tool tray locks legs open during use but folds for easy carrying with legs snap-chained together. No. 450 Tristand Chain Vise with ½" to 5" capacity is also available.

Call your Distributor today. For your convenience, he maintains a complete stock of PHEMILED Work-Saver Pipe Tools and parts.



BACK TALK

LPG-wonder fuel!

Dallas, Texas

The article, "To build a new tractor market, Cisco concentrates on the old," in your August issue is the kind of story that does my heart good.

From this I see that tractor conversions are here to stay, as I wrote in an article for BPN, November 1954 issue.

We have seen the conversion men complain when factory - equipped LPG tractors hit the market. We have been through the diesel tractor fad, or fashion, or phase. Yet we are still in business, converting tractors to that wonder fuel—LPG.

ROBERT N. JONES
J & S Carburetor Co.

Arkansas—"Timely article"

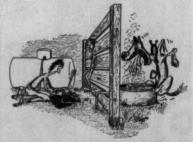
Columbus, Ohio

My congratulations on a timely and well written article in the September issue of BPN. The philosophy that Amos David is conveying in "Arkansas dealer converts a space heater market to central systems," can only help Arkansas L.P. gas dealers to strengthen them individually and make their industry a more vital part of our economy.

Having worked with Amos David and Jack Morris, I know what aggressive merchandising can do. Amos David is taking his Janitrol program to the L.P. gas dealers of Mississippi and Tennessee and a good sequel next year would be an article on the results, I'm sure, in those states.

C. H. LANGENDORF Midland-Ross Corp.

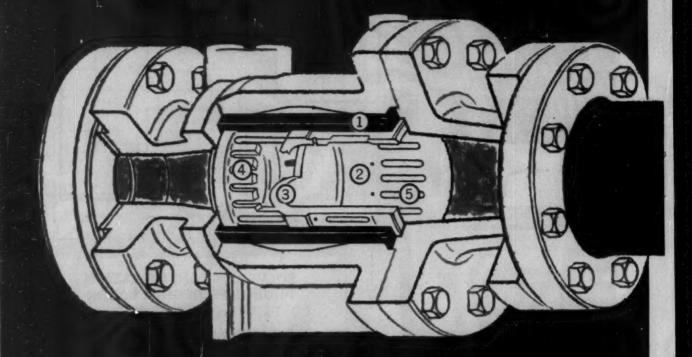
"THE BIG DEAL BOYS"



Kermit Bulla Hercules Casualty Insurance Co.

"Then we jist hook it to the existin line."







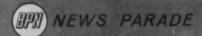
GROVE FLEXFLO® REGULATORS' ONE MOVING PART ASSURES TROUBLE-FREE CONTROL

A flexible rubber tube 1 is the only moving part in the Grove Flexflo. Silent flexing and rolling action of the tube over a core 2 can never slam, stick or wedge. Core barrier 3 forces incoming fluids up through the inlet slots 4 under the tube and down through the outlet slots 5 The flexible tube assures positive shut-off even though foreign matter may be trapped between the core and the tube. Design simplicity assures long, maintenance-free life. Flexflo can be self operated, pilot operated or used with electrical, pneumatic or hydraulic Grove operators. Proven in pressure reducing, back pressure, remote, automatic shut-off and manual open-shut services. Cast iron or steel bodies, sizes from 1" to 12", working pressures for gas, water and most petroleum products to 1,500 pounds. Write for Technical Presentation No. 850.

GROVE REGULATORS

GROVE VALVE AND REGULATOR COMPANY

a subsidiary of Walworth • 6529 Hollis Street, Oakland 8, California Offices throughout the United States and in Western Canada



The industry in action

SUPPLY & TRANSPORTATION

Helium program to boost liquids

The output of gas liquids will increase with the new government-industry program to extract helium from natural gas.

Industry and government experts calculated that the program may add an extra 100,000 to 120,000 bbls daily to present output of gas liquids which has already risen 75 per cent in the last six years and now stands at about one million bbls daily.

The figure is based on the fact that Northern Natural Gas Co. of Omaha, Neb., which became the first company last week to sign a helium contract with the government, will produce 20,000 bbls daily of gas liquids in connection with its helium production.

Tuloma builds underground terminal

Tuloma Gas Products Co.'s new underground storage terminal is scheduled for completion this fall

The storage facility at Wood River, Ill., has a capacity of well over 200,000 bbls, and will include a propane storage capacity of more than 150,000 bbls, plus a separate 50,000-bbl cavity for propylene.

This is the latest step in Tuloma's nationwide expansion program and the second move toward enlarged operations in the Wood River area. The first step was the establishment of Wood River district sales office in the earlier part of the year.

Mid-America moves 27,000 bbls per day

A record average volume of 27,000 bbls per day of propane was moved by Mid-America Pipeline Co. during July, reports Robert Thomas, president. August forecast is seen at 34,000 bbls per day.

Thomas also said volume at all terminals has increased since late in June. The first butane was

F. Morris Rowles, 68, president and founder of the California Liquid Gas Corp., Sacramento, died recently in Geneva, Switzerland. He and has wife were on a round-the-world trip when he was stricken with a heart attack.

received at the Skellytown, Texas, terminal on July 31 and the first shipment moved into the Conway, Kansas, terminal the middle of August.

He reported that 25 shippers are now using the pipeline, and that the number of propane distributors and dealers receiving deliveries from the line is continuing to grow.

The gross income for the six-month period was \$3,094,413; operating costs were \$3,415,924; net loss was \$1,750,119.

ASSOCIATIONS

LPG farm applications to be studied

The Department of Agricultural Engineering, University of Maryland and the LPGA will conduct an agricultural-industrial clinic at the university in College Park, June 5-7, 1962.

Purpose of the clinic will be to acquaint the participants with the techniques and methods used in applying LPG to the various farm and industry uses.

High Plains holds special tour

Texas Butane Dealers Association recently sponsored a special tour for visitors to show off flame cultivation at the High Plains Research Foundation in Halfway, Texas.

The foundation displayed the results of flaming on various crops including cotton, grain, sorghum, corn, soybeans, sesame, castor beans, sugar beets, and other vegetables.

Northeast to have biennial convention

The Northeast LPGA trade show and convention will be held biennially in Washington, D. C., during September or October, beginning in 1963.

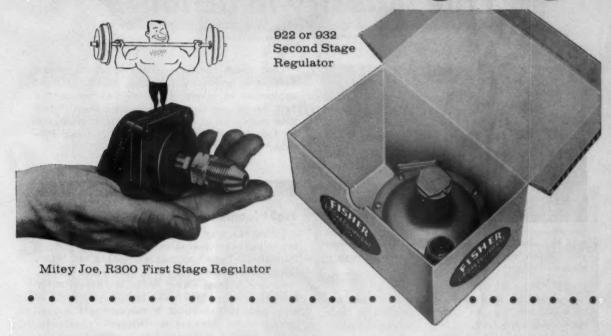
This was decided at a recent meeting of the LPGA district 9 and 10 executive committees in New York.

An east-central district educational committee was established with Leonard H. Lemon, Bastian-Blessing, Chicago, as chairman. The committee also approved a northeast LPG industry meeting and program in Atlantic City, N. J., in 1962 in conjunction with the AGA convention.

Florida adopts anti-Red resolution

The Florida LPGA, at a recent meeting, adopted a resolution calling for an all-out fight against communism at the grass roots level. The resolution was sent to President Kennedy.

NEW FISHER TWO-STAGE REGULATOR PACKAGE Installs for Less than Single Stage!



Here in one complete, low cost package you get the Mitey Joe, Type R300, a high capacity, accurate first stage regulator, plus a rugged, perfectly matched 922 or 932 second stage regulator.

The compact, simply designed Mitey Joe is preset to deliver 10 pounds outlet pressure to the second stage regulator. It never needs adjusting and can be mounted on its own connections without a bracket. In addition, Mitey Joe's streamline design and large orifice reduces freezing problems to the absolute minimum. It is available with either a straight or angle POL.

Fisher's dependable second stage regulator (922 or 932) delivers a precise 11" water column, and insures trouble-free appliance service.

Once this Fisher package goes to work, two-stage regulation insures that appliance pressure is steady under all load conditions throughout the year. Save yourself the worry, service calls, and expense of single stage regulation.

FOUR REGI	ULATOR	PACKAGES AVAILABLE				
Package No.	922-233	922-234	932-139	932-140		
1st Stage Regulator Inlet Conn.	R300-22 St. POL	R300-23 Angle POL	R300-22 St. POL	R300-23 Angle POL		
2nd Stage Regulator Connections Orifice Size Capacity CFH	14 × 14	FNPT	932-10 1/ ₃ x 1/ ₄ FNPT 1/ ₁₆ 500			

These Important
Two-Stage Advantages
in a
Money-Saving
Installation

- * Assures better appliance pressure
- ★ Requires smaller piping from tank to home
- ★ Reduces freezing troubles and customer complaints

Write for special information on advantages of Two-Stage Regulation



I FLOWS THROUGH PIPE ANYWHERE IN THE WORLD... CHANCES ARE IT'S CONTROLLED BY



FISHER GOVERNOR COMPANY Marshalltown, Iowa

SINCE 1880

IF NEWS PARADE

The industry in action



New officers of the Florida LPGA are: (left to right) C. W. Boye, Ft. Lauderdale, vice president; T. H. Slade, Jr., Jackson-ville, president; and Robert S. Bray, St. Petersburg, secretary-treasurer.

A committee was also appointed to work out a program for use by the LPG dealers in their home town. The program is to educate the population concerning the ways and means of communism.

Idaho-Nevada-Utah elect officers

New officers were elected at the Idaho-Nevada-Utah LPGA convention held late August in Salt Lake City, Utah. They are Jack Kier of Vernal, president of the Utah association; and Reed Smith of Malad, president of the Idaho association. The Nevada group did not elect a new officer, retaining Robert Winchell of Yerington as president.

Other officers named to the Utah group included Kenneth B. Kearns and Stanley M. Wells, both of Salt Lake City, vice president and secretary, respectively.

Council starts on second "giveaway"

The National L.P. Gas Council's \$70,000 "L.P. gas on the farm giveaway" contest came to a close recently with 163 lucky prizewinners. Topping the prize list were five farmers who won Minneapolis-Moline L.P. gas tractors.

The remaining 158 winners won an assortment of prizes ranging from LPG flame cultivators to tractor carburetion conversion kits and cigarette lighters.

The grand prize winner is Ray L. Barry of Oelwein, Iowa, who entered at Okeh's Gas. There were two second prize winners—Ervin Hodges of Williamsburg, Ohio, who entered at P. E. Snyder & Son, Blanchard; and W. A. Darden of West Point, Ga., who entered at Valley Gas Co., Lanett, Ala.

Last month the Council kicked off its second nationwide giveaway featuring 555 LPG home appliances as prizes. A record was set on the first day of registration in Palmer, Mass., when 2100 registered at a county fair booth sponsored by Lehigh Bottled Gas Division of National Propane.

REGEIMBAL: WASHINGTON

Fight looms on price floor bill

Fireworks may come early next year over a law to bar below-cost sales. Representative Wright Patman (D-Texas) already has such a bill before Congress. Patman's bill (H. R. 127) would prevent businessmen from selling stocks at "unreasonably low prices"—i.e., lower than inventory or replacement costs plus overhead. Penalties would include paying treble damages to "injured' competitors. Both the Small Business Administration and the Federal Trade Commission favor the idea, while the Budget Bureau, Commerce and Justice Departments oppose it on grounds it would conflict with too many existing state laws.

SBA to accept unfair trade complaints

It's easier now for operators of small business firms to ask the government to clamp down on competitors they believe guilty of unfair trade practices. Small firms can file complaints of unfair practices with the 59 Small Business Administration offices around the country. SBA field offices will forward the complaints to the Federal Trade Commission in Washington, D. C.

"Truth in lending" bill will be back

The politically-hot "truth in lending" bill introduced by Senator Paul Douglas (D-Ill.) and backed by a host of other consumer-conscious congressmen, did not pass this year. But its boosters have lost none of their enthusiasm for the measure.

They will be back in earnest next year, both in the Senate, where Douglas' bill has already undergone committee hearings, and in the House, where Representative William Fitts Ryan (D-N. Y.) introduced an almost identical measure shortly before Congress closed up shop to go home.

Both bills seek to impose rigid rules on the writing of consumer credit by retail merchants. Salesman would have to provide detailed statements for all credit sales showing (1) basic cash price of an item, (2) time payment charge, (3)

BULLETIN:

15,000,000 gallons of Propane under this "Christmas Tree" plus millions more in four other giant caverns guarantee Shell distributors a year-round supply

Shell backs up its Propane distributors with a vast interconnected supply network.

It includes: Five great manmade storage caverns. Over 20 Propane-producing plants. Millions of barrels of petroleum in underground reserve. Pipelines, tank cars and transports that crisscross the nation.

Read what this means to Shell Propane Distributors—and its possible significance to you.

A^N ASSURED source of supply is an absolute "must" for any LP-Gas distributor.

That's why Shell backs up its distributors with one of the most carefully planned supply networks in the business.

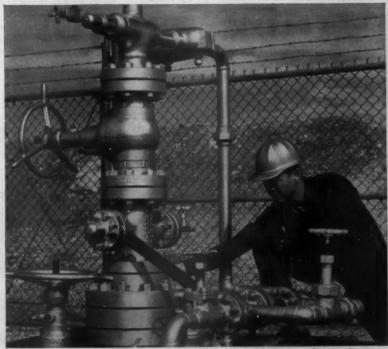
Four facts give some idea of its scope and significance to you.

Consider these facts

1. Shell draws propane gas from a network of over 20 producing plants.

2. Shell holds millions of gallons of Propane in reserve – stored in mammoth, man-made caverns. These caverns, five in all, are strategically located to serve the areas where Shell Propane is sold.

3. Shell has thousands of producing wells to draw from. Propane comes from petroleum and natural gas. And Shell's underground petroleum reserves are conservatively estimated in the millions of barrels.



This "Christmas Tree" marks a huge subterranean salt dome in Denver City, Texas—where Shell stores 15,000,000 gallons of Propane. Seventy miles away—in Notrees, Texas—another giant cavern holds 6,000,000 gallons.

4. Through integrated pipelines, tank cars and transports, Shell can meet its distributors' needs anywhere in the U.S.A. Shell distributors don't suffer from "shortage headaches."

Contact a Shell Representative

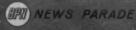
These four facts provide a solid framework for distributor profit. They show why Shell distributors stay with Shell—and why so many others are switching to Shell.

A Shell Representative will be glad to discuss LP-Gas with you. Contact the nearest Shell office, or write: Shell Oil Company, 50 West 50th Street, New York 20, N. Y.



A BULLETIN FROM SHELL

-where 1,997 scientists are working
to provide better products for industry



The industry in action.

difference between cash price and time payment, (4) added charges, such as credit fees, insurance, etc., (5) amount to be financed, (6) amount to be paid for financing and interest fees, (7) the rate of interest on balance expressed as a "simple" annual percentage rate.

Opponents of the bill charge that such a law is not needed since most credit abuses today are already punishable by state and local laws.

Tougher anti-trust laws proposed

Congress will take up next year various bills to toughen up the anti-trust laws.

After some study of several proposals this year, the lawmakers put the issue aside. Most of the bills have White House support. The Senate antitrust subcommittee will continue hearings on the proposals this fall.

Included among them are: A measure to hike maximum fines on corporations convicted of antitrust violations from \$50,000 to \$500,000 for second offenses; a bill to permit jailing of company presidents and board members who know of violations but fail to stop them; a measure to empower federal courts to bar anti-trust violators from company positions.



Officials of the Western Liquid Gas Association who spoke before a recent southern California regional meeting in Anaheim, included: (left to right) C. Roland Usher, WLGA president; Harold Costello, WLGA district No. 13 alternate director and president of Imperial Gas Co.; Harry Horn, WLGA district No. 13 director, president of Horn, Inc., and chairman of the area meeting; and Everett B. Murphy, managing director of the association. Highlight of the program was a slide presentation of the "Balanced Power Homes" promotional campaign being staged by the utilities in the area. Members in attendance showed interest in participating in the promotion, which stresses the benefits of using both electricity and gas in the home, each for the job it does best. (For details, see BPN, April 1961, page 31.)

Another measure being studied would give the Federal Trade Commission authority to issue temporary cease-and-desist orders while unfair trade practice cases are still pending.

More funds voted for SBA loans

The government is increasing its efforts to help small firms obtain loans.

In the latest actions, Congress beefed up the loan fund of the Small Business Administration (SBA) by \$20 million, and the agency revised its lending procedures.

The extra funds were approved to permit SBA to keep up a vastly expanded lending rate which has been underway since early this year. Loans were running this summer at a rate double that of a year ago.

At about the same time, the SBA modified its bank participation loan program to encourage more private financing of these loans and to speed up their processing. Now, a bank will check the applicant's credit rating and issue the loan on its own forms. SBA will not review the loan until after it is made.

Senator proposes LPG postage stamp

Senator Carlson (R.-Kan.) introduced a bill last month "to provide for the issuance of a special postage stamp in honor of the fiftieth anniversary of the liquefied petroleum gas industry."

The bill has been referred to the committee on Post Office and Civil Service.

MARKETERS

Pyrofax holds teens' baking contest

A new teen-age baking contest with the theme, "Bake your way toward your BA," was launched with the opening of the school year by Pyrofax Gas Corp., unit of Union Carbide Corp.

There will be three regional grand prizes that include a \$1500 college scholarship, plus a possible \$500 bonus, a \$500 Caloric gas range for the winner, and a similar range to the home economics department of the winner's school.

Entrants must produce an essay in 100 words or less on the subject of "Why I want to go to college."

American Hydratane buys 2 firms

American Hydratane Corp., a newly formed corporation headquartered in Chicago, recently announced the acquisition of the assets of Blue Flame Gas Corp. and Petroleum Securities Corp., both of Bluffton, Ind.

More profit-ability obertshaw



Robertshaw controls up-grade gas range sales!

It's no secret . . . the quickest way to higher profits is to up-grade the sale. And the place to begin . . . sell Robertshaw control features that let ranges do more than cook!

Robertshaw FLAME SET, the newest "burner-with-a-brain" means:

- no more burned pans
- * small flame for small pans
- simplest to operate
- · no more scorched food
- · BIG flame for BIG pans
- · no instructions needed

Robertshaw FLAME MASTER® means full oven control for cooking and baking, plus these low temperature features:

- roasts can be kept for hours . . . just right
- plates can be heated at low, low temperatures that "pamper" the finest china
- food can be kept serving-warm without over-cooking
- complete meals can be kept hot for late-comers
- frozen food can be thawed in a jiffy

Sell these plus features on your deluxe-line Robertshaw-equipped gas ranges. Up-grade the sale and up your profits. Enjoy more profit-ability . . . from Robertshaw.,, the name that MEANS temperature control.



NOW...A. O. Smith has produced



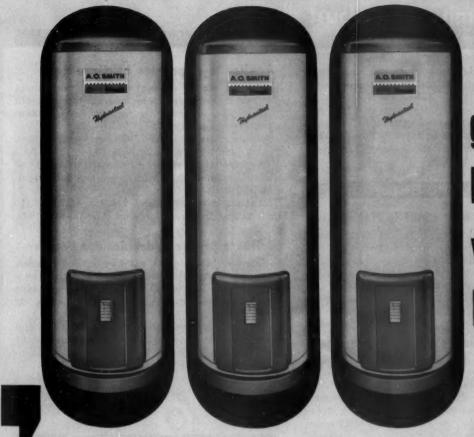
Millions more than any other

What does the sales success of A. O. Smith mean to you?

Just this: if you plan to sell water heaters for only a short time, then any manufacturer will do. But if you're in the water heater business to stay, your most profitable bet is to join the year-in, year-out leader—A. O. Smith.

You can offer customers a full-value, 10 year guarantee—with no mileage—no pro-rated costs—in a full range of sizes. You'll be supported by a \$1 million sales program featuring full-color advertising in the Reader's Digest.

Most of all, you're backed by the resources and 88-year quality reputation of a company that's on top of the water heater business and intends to stay there. Call your Permaglas Distributor today, or return the coupon.



glasslined water heaters

manufacturer!



MANUFACTURERS OF COMMERCIAL AND DOMESTIC WATER HEATERS, WATER CONDITIONERS AND HYDRONIC BOILERS

Hankakee, Ill., Newark, Cat., A. G. Smith International S. A., Milecules I, Wis.

A. O. SMITH CORPORATION Consumer Products Division Dept. BPN-1861, Kankakee, Illinois

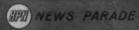
Please send me full information on the profit potential with Permaglas water heaters. [WH-1005]

NAME

COMPANY

ADDRESS

CITY______ZONE__STATE____



The industry in action

"These initial acquisitions are planned as the nucleus of a nation-wide distribution operation for American Hydratane," commented Roger R. Isch, president. He said the company has other transactions under consideration to provide wider LPG distribution.

Bell Intercontinental Corp., formerly Bell Aircraft Corp., stated last month that it is interested in combining operation of Intex Oil Co., Bakersfield, Calif., in which it holds majority interest, with American Hydratane.

SUPPLIERS

Trinity opens new plant in Nebraska

Trinity Steel Co., Inc., Dallas, last month opened a new plant at Lincoln, Neb. The new plant will contain the latest facilities for the production of LPG domestic tanks with room for future expansion of other product lines.

W. G. Johnson will act as plant manager for the new facility.

Warren announces executive changes

Warren Petroleum Corp., Tulsa, Okla., recently announced several organizational changes in its LPG division. They are:

John W. Lesch—from sales manager to general manager of supplies and distribution; A. E. Moore—from president of the Dri-Gas Co. of Chicago, to general manager of domestic and industrial sales, with headquarters in Tulsa; R. F. Maycen—from vice president to president of the Dri-Gas Co.; F. T. Lundin—from vice president in charge of sales to general vice president and assistant to Maycen; J. T. Bradley—from refinery and chemical sales to general manager of that department; Louis W. Bullock—from special assignments to southeastern regional manager; and F. J. LaFortune—from regional manager to northeastern regional manager.



A. E. Moore



R. F. Mayron

THE SALES SCENE

Appliance shipments continue gain

For the second straight month gas appliances showed increases in sales over the same month a year ago, according to Gas Appliance Manufacturers Association.

Heading the list for July were gas boilers, which jumped 16 per cent with 13,550 shipments. Other appliances showing increases were central heating equipment, gas furnaces, and free-standing and built-in ranges.

Automatic storage water heaters, with 177,110 shipments, dropped 4.1 per cent from July, 1960.

Builders prefer hydronics for homes

Despite cheap electric rates in the Seattle area, just four builders say they would heat their own houses with electricity, according to a recent survey. Seven expressed preference for forced air heat.

The survey, conducted by the Puget Sound Better Heating-Cooling Council, showed that 54 builders out of 68 preferred hot water heat to either forced air or electric heat.

All the builders surveyed were members of the Home Builders Association of Greater Seattle.

NEWSBRIEFS

Pressed Steel Tank Co. recently delivered six 90,000-gal capacity Hackney storage tanks to the Long Island Lighting Co.'s Glenwood Gas Plant at Glenwood Landing, New York. The tanks measure 11 ft in diameter, 134 ft in overall length and weigh about 90 tons each.

Revised editions of the following National Fire Protection Association standards are now available from NFPA, 60 Batterymarch St., Boston 10, Mass.: "Flammable liquids code"—No. 30, 75 cents; "Static electricity"—No. 77M, \$1; "Oil burning equipment"—No. 31, 75 cents; "Mobile homes and travel trailers"—No. 501B, 60 cents; "Liquefied Petroleum gases"—No. 58, 75 cents; "Gas systems for welding and cutting"—No. 51, 60 cents; "Foam-water sprinkler and spray systems"—No. 16-T, 60 cents.

Jerome J. O'Brien of Midland, Texas, was appointed last month as director of the Department of Interior's office of oil and gas. O'Brien has been

"on a busy day . . . our CORKEN PUMP* saves 3 Hours of our bulk truck men's time"





Left to right: Jack Smith, of Gas Equipment Supply Co., Atlanta; and C. Walter Sharp, R. Glen Sharp and Dick Vining, of Suburban Propane Gas, Inc., Sumter, South Carolina.

SUBURBAN PROPANE GAS

"Our Model 1000 Corken bulk plant pump is doing a superb job filling retail delivery trucks. From two bulk tanks totaling 48,000 gallons, we pump through a 4" pipe arranged so the trucks fill in 8 to 12 minutes each. These trucks range in size from 1,250 to 1,900 water gallons. We average 140 gpm, and under ideal conditions get as high as 170 gpm.

On a busy day our new pump will save about three hours of our bulk truck men's time. This is the same as giving us an extra truck three hours a day when we need it most.

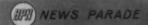
In the same bulk plant we installed a model 290 Corken compressor. It easily unloads and pumps down vapor on two tank cars per day. The best we were able to do in the past was a tank car and a half per day.

We figure this Corken equipment will save us several thousand dollars a year."

Suburban Propane Gas, Inc. R. G. Sharp, General Manager

CORKEN'S

P. O. BOX 1062 • TEL. CE 5-5517 Oklahoma City, Oklahoma, U.S.A.



The industry in action

vice president of the Monterey Division, Mid-Continent Region, Humble Oil & Refining Co.

Dearborn Stove Co. recently let a contract for \$1.5 million for construction of a modern plant, warehouse and office building. The Dallas plant will be located in the Garland industrial district on a 30-acre tract. The plant will be completed in June 1962.

Small Business Administration has published a booklet to help improve sales, credit and collection controls. "Small Marketers Aids, Annual No. 3" can be purchased for 40 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

John A. McNeil of Birmingham was recently elected president of the Alabama LPGA. William R. Ruffles of Fairhope was named vice president, and Margaret H. Kruger of Foley was re-elected secretary-treasurer.

An LPG industry ad spectacular appeared in the September American Home. Spearheading the spectacular was a National L. P. Gas Council three-page color ad, plus six L. P. gas tie-in ads by Council members.

News notes . . .

Marketed production of natural gas in the U.S. totaled 12.771 billion cu ft in 1960, 6 per cent greater than in 1959, according to the Bureau of Mines . . . Valley Gas Co., branch of Wytheville Bottled Gas Co., will begin distribution of LPG in the Roanoke, Va., area around the first of next month . . . Controls Co. of America, Chicago, recently extended its range of gas heating controls with the acquisition of Thermac Co. of Corona, Calif.... Construction began last month on Texas Eastman Co.'s 275-mile pipeline extending from the firm's plant site in Harrison county to the salt dome storage facilities of Phillips Petroleum Co. of Clemens Dome, Texas . . . Union Light, Heat & Power Co. of Covington, Ky., was authorized by the Public Service Commission to build a liquidpropane storage cavern in Constance, and a propane plant in Erlanger . . . Sid Richardson Gasoline Co. recently moved its Forth Worth headquarters office to 1105 Fort Worth National Bank Building . . . Glenn F. Brockett, Marshalltown. Iowa, was named a Fellow of the Instrument Society of America for "contributions in the field of controller and control valve design." . . . Jinx Falkenburg will return to television this fall as spokeswoman for the AGA, which will sponsor "Theater 62."



CURRENT L.P. GAS & L.R. GAS PRODUCTION & INVENTORIES

()	(A.P.I. figures—in thousands of gallons)							
The state of the s	Propone	Butane	Bu-Pro Mix	Iso- Butane	Other Mixes	Total LPG	Total LRG	
Production (U.S.)								
August '61	360,814	178,266	60,843	66,594	82,089	748,606	279,415	
August '60	297,210	145,424	67,309	50,089	71,493	631,525	281,294	
'61 to date	2,986,272	1,563,021	434,791	537,978	657,124	6,199,186	2,213,920	
'60 same period	2,738,461	1,412,453	443,301	451,822	549,889	5,595,926	2,146,223	
Inventories (8-31-61)					STATE OF THE STATE			
Zone A	24,348	4,928	17	*		29,293	31,461	
Zone B	58,959	6,497	***	2,303	976	68,735	37,553	
Zone C	133,443	37,040	1,242	4.445		176,170	16,009	
Zone D	120,018	11,156	22,317	1,395	146	155,032	703	
Zone E	248,298	298,003	761	49,852	7,036	603,950	82,409	
Zone F	281,326	108,593	1,035	25,275	29	416,258	6,029	
Zone G	4,907	511	8,515		34 37.30	13.933	720	
Zone H	880	322	126	153	171	1,632	45,498	
U.S	872,159	467,050	34,013	83,423	8,358	1,465,003	220.382	
U.S. (8-31-60)	643,489	370,661	25,177	34,582	3,958	1,077,867	140,485	



I NEVER WANT TO SEE THEM AGAIN!

THAT'S WHY I ALWAYS INSTALL DAY & NIGHT WATER HEATERS

"It's great to get phone calls that say, 'Please come put in a new water heater.' But it used to be murder when they'd say, 'Get out here and fix that water heater you sold me!'

"So I've gone over to DAY & NIGHT a hundred per cent. With DAY & NIGHT you know you're never going to have a bunch of warranty failures. DAY & NIGHT builds heaters a little better than other companies do. Their warranty is a lot better than most. And it's a pleasure to do business with the DAY & NIGHT distributor. Good combination!

"And since DAY & NIGHT prices are competitive... well, there's no reason in the world for buying and selling second-best instead. Right?" Right! For information, write:

DAY & NIGHT MANUFACTURING COMPANY
855 ANAHEIM-PUENTE ROAD, LA PUENTE, CALIFORNIA · 4551 SOUTH RACINE AVENUE, CHICAGO 9, ILLINOIS

OCTOBER, 1961

2 NEGATIVES give POSITIVE you POSITIVE REGULATION with the...



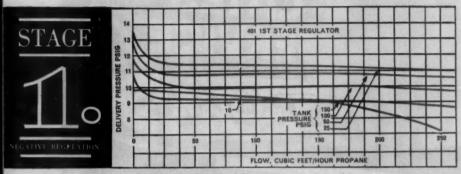
all-new RegO Hi-Lo Mark II twin negative regulator system

Forget about flow fluctuations. For the first time, an entire 2-stage regulating system has been custom designed to work as a team in delivering constant, uniform gas flow—regardless of tank pressures or load conditions. Your customers get all the gas they need at the correct pressure for most efficient operation of appliances and heating plants—especially in winter when tank pressure is lowest and demand is highest. Result—fewer complaints, greater cus-

tomer satisfaction, and fewer costly service calls.

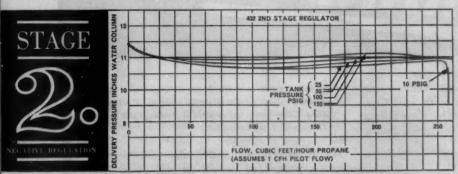
Saves you money, too. Lower initial cost than any other 2-stage regulator system plus additional savings you can realize through the use of smaller, less expensive transmission line between the first stage regulator on the container and the second stage at the house. Savings here actually pay for the first stage regulator in most cases.

HERE'S PROOF OF POSITIVE REGULATION



tank pressure drops-delivery pressure rises!

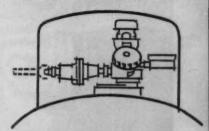
RegO's unique, exclusive double negative regulation system does the "impossible" . . . delivery pressure from the first stage actually rises as tank pressures decrease! This means plenty of pressure is available to the second stage when it's needed most—in winter when falling temperatures drive tank pressures down.



constant delivery pressure—regardless of tank pressure or load

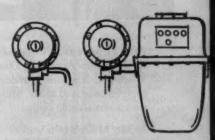
Delivery pressure varies only 0.4" W. C. between 10 psi and 150 psi tank pressure at any load within the capacity of the second stage regulator. Note the practically straight line regulation in the chart above. This means perfect appliance performance and no problems with sensitive mini-pilots.

NEW EASE AND VERSATILITY OF INSTALLATION



at the tank . . .

First stage can be connected directly to container service line valve with standard POL connector. No need for complicated connectors, etc. Ultra-compact first stage with any Multi-Valve assembly fits easily inside a 12° diameter dome. Bonnet vent tapped for insertion of curved tube needed on underground and convertible systems.



at the house . . .

New design right-angle inlet-outlet configuration allows a neat installation without superfluous, unsightly bends in piping or tubing . . . ideal for direct connection to vapor meter, too.



Write for complete facts:

New RegO folion explains how, where and when to install 2-stage regulation; gives details on new double-negative system, and what it means to you.

THE BASTIAN-BLESSING COMPANY
4201 West Peterson Ave., Chicago 46, Illinois, Dept. 31-J



After 11 years as an independent, Al Miller, owner of the Miller Appliance Company of Sauk City, Wisconsin, has gone branded. Why? One unique experience proved to Mr. Miller that he was dealing with a remarkable company.

In Mr. Miller's own words:

"A real cold wave rushed into the Sauk Vity area a few winters ago. Almost every gas supplier was shut down and I went home that night wondering how I was going to fill all

3435 Broadway Kansas City 11, Missouri

20 N. Wacker Drive Chicago 6, Illinois

701 Sherland Building South Bend 1, Indiana

500 Robert Street St. Paul 1, Minnesota

3101 Euclid Avenue Cleveland 15, Ohio

7730 Carondelet Ave. Clayton 5, Missouri my fuel orders the next day. In the morning, I went to the plant and was astonished to see my full supply of LP gas on the siding. Cities Service had delivered it practically over night. That's what I call service!"

Mr. Miller realizes that the name Cities Service means quality and prestige as well as service. That's why he's joined a growing number of leading LP GAS distributors in proudly displaying the Cities Service emblem.

170 University Avenue Toronto 1, Canada

1658 East Euclid Des Moines 13, Iowa

626 E. Wisconsin Avenue Milwaukee 2, Wisconsin



Beyond the Mains

By WILLIAM W. CLARK . Editor



The sham of the "Norris Centennial Rate"

DEADLINES BEING WHAT THEY ARE, our little diatribe last month against the minions of Washington bureaucracy was somewhat incomplete. It was not until we had blown off a full head of steam against the Department of Justice, the Agriculture Department, and TVA that a couple of deliveries of additional fuel for the boiler hit the "in" basket. We now have a new head of steam, so we propose to let 'er go.

The first item on the agenda is a copy of some remarks of Sen. Barry Goldwater, delivered on the Senate floor in August. The Senator, who seems to be making good political headway by whacking away at some of the most sacrosanct of the politicians' sacred cows, exposed, with appropriate chapter and verse, the sham of the TVA's "Norris Centennial Rate." He had dug back through the Congressional Record to see just what it was the late Senator George Norris had really had in mind in promoting TVA. He found that, among other things, Mr. Norris had said (on the Senate floor): "In carrying out this governmental purpose, incidentally we shall sell some power . . ." Asked Goldwater: "Did the Senator visualize TVA as a giant federal power monopoly with 75 per cent of its power production from steam capacity?"

In the same context, the late Senator had said, "and when it comes to revenue, it does not seem to me the government ought to be in any different position from any ordinary taxpayer." Wondered Senator Goldwater: "Is that what TVA is today? Certainly not. It pays far less in lieu of state and local taxes than would private industry, and absolutely nothing in federal taxes."

Senator Goldwater also did some homework on TVA rate structures. Among other things, he found that TVA's largest customer is the Atomic Energy Commission. Now, while TVA in 1961 has been trumpeting its "reduced" rates (the Norris Centennial) just one year ago it was increasing its rates to AEC from 3.79 mills to 3.82. There was, in fact, a greater rate of return

from sales to AEC than from the remainder of the power business.

"Why," asked Senator Goldwater, "should a federal agency in the power business charge another federal agency more for electrical power than it charges residential, commercial, and industrial consumers? The taxpayers are the ones who, through their taxes, are subsidizing TVA so its rates can be lower than they are in other sections of the country, so why should these same taxpayers pay the premium over others for the power their taxpayer-financed federal agency purchases . . .?

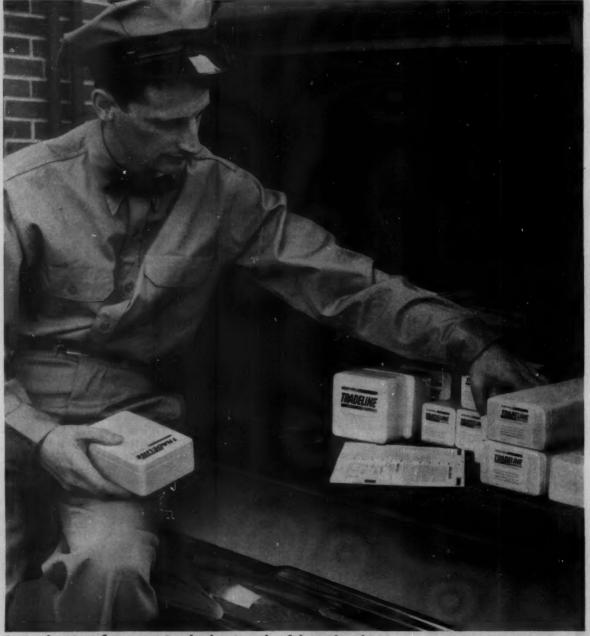
"Another thing hard for me to understand is why TVA should be permitted to purchase power from a Corps of Engineers development at below cost in order to sell it to domestic, commercial, and industrial consumers at a subsidized rate."

Perhaps the most shameful aspect of TVA's announcement of the "Norris Centennial Rate" was that it was not what the Authority made it out to be. It was not a rate "reduction" as such: actually, it was a new, lower rate schedule, and nothing more. TVA sets certain rates which distributors who buy from the Authority can charge. Prior to the establishment of the Norris Centennial Rate, TVA had three rate schedules which they could use, as they chose. Now there's a fourth. But, according to Senator Goldwater, "out of 155 distributors purchasing their power from TVA, 32 now operate on the lowest schedule, 43 on the intermediate schedule, and the remaining 80 (or better than 50 percent) operate on the highest rate schedule."

In TVA's own news release, the worst sort of half-truth was promulgated. The release said: "When adopted by all distributors, the centennial rate schedule will provide potential savings to consumers of an additional \$35 million a year."

Initially, only two distributors agreed to adopt the new rate. When, it is pertinent to ask, will the other 153 follow suit? The \$35 million saving (which in itself is a highly debatable figure) is dependent upon all of them doing so.

NEW! Just a few Honeywell truck can handle up to



Now just a few controls instead of hundreds. Honeywell engineers selected and reengineered 170 basic controls that do the job of 18,000 or more! Just a handful of TRADELINE Controls on your truck normally take care of up to 93% of all your service needs.

TRADELINE controls on your 93% of your service needs

Eliminates extra trips for right controls...means more money for you...better service to your customers

Now Honeywell introduces a revolutionary new approach to eliminate the confusion in controls stocking. It's TRADELINE—the new way to streamline your control stock.

Honeywell engineers selected and re-engineered 170 controls that will do the job of 18,000. And do the job right! Since TRADELINE Controls will handle up to 93% of all common control installations, you just carry a few controls instead of hundreds.

With Tradeline Controls you can now afford to carry the right controls on your truck and eliminate extra trips and wholesaler pickups for controls.

And, you can always depend on your wholesaler to have the right control if he stocks TRADELINE.

The savings in time alone, by eliminating unnecessary extra trips for the right control, will help put you in business with your initial stock of TRADELINE Controls. From there on, you're making money, plus giving your customers faster, more efficient service.

PROVED IN TWO-YEAR TEST!

The Tradeline idea of a few controls replacing hundreds has been tested for two years in the Southwest with hundreds of dealers. It's a proved way to increase your business.



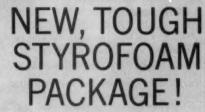
FIND THE RIGHT CONTROL IN POCKET GUIDE

A new, pocket-sized cross reference guide tells you instantly which basic TRADELINE Control is needed. It's available from your wholesaler.

Call your wholesaler today and get him to assemble the proper TRADELINE Controls for your needs.

. TRADEMARK

THE NEW WAY TO
STREAMLINE WHOLESALERS'
AND DEALERS' CONTROL STOCK





New idea in packaging. The Honeywell Round, V80 and V81 gas valves, pilotburners, thermocouples and the Y400 Powerpile package are among the first Tradeline Controls to be nestled in handsome Styrofoam containers. Handy, neat, controls can't be damaged on truck.





HONEYWELL INTERNATIONAL—Sales and service offices in all principal cities of the free world. Manufacturing in the United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

Beyond the Mains (continued).

Big Brother Sam is watching you

THE SECOND ITEM that got the blood pressure up into the uncomfortable zone was an article in Nation's Business for July, titled "Mail Order Prosecutions: Who's Next?" The author was a highly respected ex-Federal Trade Commissioner, Lowell Mason.

The answer to Mr. Mason's rhetorical question, "Who's Next" was easy. It was Suburban Gas of Pomona, Calif. And after Suburban, you could be next. For that reason, we are reprinting herewith selected excerpts from Mr. Mason's excellent, but rather frightening article:

Businessmen all over the country are receiving registered letters requiring them to reveal trade secrets, names of customers, suppliers, and any other information official curiosity may suggest.

The letters come from the Federal Trade Commission. They are sent under authority granted by Congress nearly a half a century ago for the purpose of compiling corporate statistics. So broad is this authority that you can be ordered to tell every fact about your business since the time it was founded. You may be required to supplement your corporate history with copies of all advertising materials, leases, contracts, bills of sale, invoices and memoranda—confidential or not. And if your company is a small family-held corporation, you may be required to inform on your wife or children—or they on you.

The law provides \$100 a day penalty for failure to reply on time and fines up to \$5000 and 10 years in jail for false or incomplete answers.

Paul Rand Dixon, the FTC chairman, cites a Supreme Court decision that such reports may be required "for any purpose within the duties of the Commission"

This means, he says, that they may be used "whether merely to obtain information for use in reports to the President, Congress, the Attorney General or to determine whether a violation of laws administered by the FTC exists."

The fact that the FTC has asked \$916 million for the new fiscal year—up from \$8 million for the year ended June 30—suggests the latter purpose. In submitting its budget, the Commission predicted an increase in pending investigations from 2000 to 3500 and a boost from 800 to 1000 in the number of formal complaints it will issue.

In an early test of the mail order technique, it sent 118 letters to orange growers in Florida. The result was 68 suits against shippers and buyers.

It is now harvesting questionnaires sent to 213 department stores in the middle of March. Soon it will be examining similar returns from the photographic industry. So far, most targets have been retailers but FTC laws and regulations are so broad that almost any business might be queried.

Furthermore, the system has aroused the inter-

est of other governmental agencies. Now the Department of Justice is asking Congress for power to order businessmen to produce any information it wants.

Mr. Dixon has said that the best way for businessmen to avoid trouble with the FTC is to know, understand and obey the trade regulation laws. But he conceded:

"I am aware that this is not an easy task because many trade practices are neither black nor white but gray, and many depend for their legality or illegality on the factual context in which they occur, which varies from market to market and from producer to producer."

It's a violation of these laws, for example, for any seller to make or buyer knowingly to obtain, payment of promotional and advertising allowances not granted on equal terms to all competing customers.

In the normal, day-to-day dickering in business such unequal allowances are obviously made—some perhaps deliberately, many others innocently.

How is a buyer to know whether his supplier is providing exactly the same terms to all customers? How is a seller to determine whether two of his

customers are competitors?

Few businessmen can reveal every conceivable fact about their companies to unfriendly critics without raising questions about their practices.

The Fifth Amendment offers no protection, either, because the Commission's inquisitions are labeled "Resolution Directing an Investigation of Practices Employed by Corporation."

Technically, not individuals but corporations are the legal target, although Basil G. Mezines, former associate executive director of the FTC, admits:

"This is not so. In many ways these orders are more drastic than a large fine because the orders are usually issued against individuals responsible for the condemned practices as well as the firm itself. These orders are binding for the natural life of the individual or firm concerned. Any person who violates a Commission order to cease and desist after it becomes final can be fined up to \$5000 for each violation."

An analysis of the first six months of the latest published reports of the Commission decisions, for 1958, shows:

Orders to cease and desist from practices the FTC didn't like were issued against 117 corporations. But 216 individuals, either as officers or policy-making employes, also were named and made personally liable for the rest of their lives to penalties up to \$5000 a day for any violation of those orders.

The orders also apply against all representatives, agents, and employes of the companies. The argument that mail-order prosecution is directed only at corporations ignores the fact that a corporation has to act through its employes—even when it is time to go to jail.



A. O. Smith quality ends costly call-backs ...let's you keep all the profit

- ★ Pressure-type brine system—can't overflow, won't clog up. Operates regardless of pressure fluctuation.
- ★ Motor driven valve—positive acting, no solenoids, no diaphragms to get out of kilter. All parts that touch water are corrosion proof.
- ★ Complete line—fully automatic, semi-automatic and manual water softeners...iron removers...clarifiers...neutralizers.
- ★ Guaranteed 10 years—all Permaglas Conditioners are backed by the 88-year quality reputation of A. O. Smith Corporation.



A	١.).		3	N	11	1		1
C	0	R	P	0	R	A	T	0	0	N
Permaglas softeners										

MANUFACTURERS OF COMMERCIAL AND DOMESTIC WATER HEATERS, WATER CONDITIONERS AND HYDRONIC BOILERS

Kankakae, III., Newark, Cal., A. O. Smith International S. A., Milwaukee 1, Wis.

Now at last a water softener that lets you keep the profits you make

MAIL COUPON FOR DETAILS A. O. SMITH CORPORATION Consumer Products Division Dept. SPN-1061, Kankakee, Illinois

Please send me full information on Permaglas water conditioning products.

COMPANY.

ADDRESS.

ADDRESS_

ZONE_STATE

ALL or PART of









ENGINEERING



- RIVER TERMINALS
- PIPE LINE STATIONS
- DISTRIBUTION PLANTS
- UNDERGROUND PIPING
- BULK PLANTS
- PIPE LINE TERMINALS
- STANDBY PLANTS



Section of a recently completed river terminal having 20 large storage tanks; pumping facilities; loading and unloading equipment.

ANCO

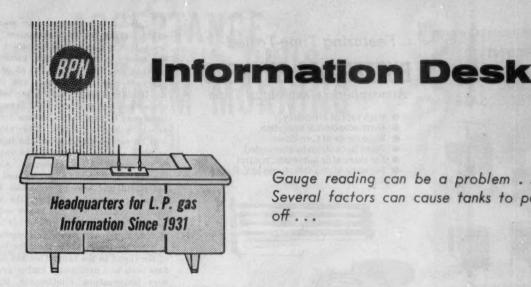
MANUFACTURING & SUPPLY CO.

TULSA, OKLAHOMA

FLINT

21st at So. Union

LUther 4-6187



Gauge reading can be a problem . . . Several factors can cause tanks to pop off ...



Simple service can aid gauge reading

Bahamas

There is no denying the progress made in the technical field by the liquefied petroleum gas industry over the past years. However, there is one item that all L. P. gas dealers use almost daily to which no one has devoted any consideration. The individual who has to read a rotogauge on a large diameter, 30,000-gal. tank, particularly when the contents are between 20 and 30 per cent of fuel, has a problem.

It is actually impossible to read one of these gauges accurately and it is a good day's work to read 20 of them.

Even with the simple addition of an extension on the gauge lever or some counter balance to off-set the weight of the tube, accuracy could be obtained.

It is difficult enough to control inventory without this additional inaccuracy.

W. K. D.

It would be a little difficult to devise a suitable counterweight that could be attached to the rotary gauge and then inserted through the 1-in. openings that are required by these gauges. Even so, some bright manufacturer may be able to devise one that could be aligned with the shaft and would then spring away and act as a counterweight. The counterweight could be separate and clamped to the shaft after installation in tanks that have manholes for access.

I guess the boys that designed these gauges have not received a complaint like yours before. They are usually pretty good about coming up with a better mousetrap when one is needed. Then too, maybe users wouldn't like the price

Why don't you devise a simple little extension to the gauge indicator arm that would easily clamp or latch over the indicating arm? A device with a handle 15 to 18 in. long should give good leverage and make it easy to move and position the gauge accurate-

On new tanks, or on presently installed tanks when they are empty and open for inspection, attach a counterweight of your own making .-



Factors that increase vapor pressures in tanks

I would very much like to get a series of formulas for determining the length of fixed level gauges (dip tubes) for spherical tanks, horizontal tanks, and portable cylinders. If the maximum filling density is known, how do you figure the length of the tube? Diameters lengths, and heights are all known factors.

Also, I cannot explain why a tank, in hot weather, will "pop off" several hours—and sometimes days -after being filled to a fairly high level, but does not pop during, or immediately after, the filling oper-



ation. These tanks are never more than 85 to 90 per cent full when they do pop.

W. R. C.

Although there are formulas for determining the volume of segments of cylinders, spheres and the flanged and dished or semi-elliptical heads of tanks. I am not including them here as these formulas can be found in several handbooks, such as "Machinery's Piping Handbook," "Mark's Mechanical Engineers Handbook," and others, with appropriate illustrations and explanations on how to use them. If you do not have any of these books, at least one of them should be available at your local li-

NFPA Pamphlet No. 58 outlines a "Method of calculating maximum volume of L. P. gas, which can be placed in a container for which length of fixed dip-tube is set" in Appendix E. In addition, Appendix D lists "Alternate permitted maximum liquid volume in per cent of total containers up to 1200 gals total water capacity as specified in B.12 (c)."

It is difficult to give an exact reason to explain why the relief valves on tanks pop-off, as you have outlined in your letter.

If you fill the tanks to a level indicated by a magnetic gauge, either the gauge may be reading inaccurately, or it may not be properly sized or adapted to the tank, and therefore does not provide the correct indication of the liquid level in the tank. A properly calculated and installed fixed



For prompt service, call the nearest Hones sales representative in

Northeast

New York, N. Y. Rochester, N. Y. N. Tonawanda, N. Y. Irvington, N. J. Union City, N. J. Watertown, Conn. Wellesley Hills, N. J. Pittsburgh, Pa. Oreland, Pa.

Southeast

Sanford, N. C.

Signal Mt., Tenn. St. Petersburg, Fla. Marietta, Ga. Louisville, Ky.

Mid-West

Cleveland, O. La Grange, O. Bellwood, III. Detroit, Mich.

St. Louis, Mo.

Milwaukee, Wis.

Southwest

Dallas, Texas Albuquerque, N. M.

Far West

Wheat Bridge, Colo. Whittier, Cal. San Francisco, Cal. Portland, Ore. Seattle, Wash.

Canada

Montreal, Que. Toronto, Ont. Vancouver, B. C. level gauge is a more certain means of indicating the safe maximum fill level. It will also serve as a check on the rotary or magnetic type gauges.

When you fill a tank to the 85 or 90 per cent level, the chances are that the liquid warms up some after being placed in these smaller tanks. Some of them may be exposed to intense direct sunshine and reflection. The vapor will be superheated and as the liquid expands and compresses it, the vapor is too warm to be condensed. Also, the heat expands the vapor as well as the liquid and thereby increases the vapor pressure. In addition, the hot shell in contact with the vapor space radiates directly down on the surface of the liquid and heats this surface to a higher temperature than the bulk of the liquid in the tank. This hot surface boils and produces a higher pressure-temperature relationship than would be obtained if the surface were at the same temperature as the bulk of the liquid.

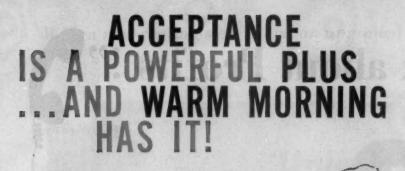
Take a 500-gal gross capacity tank as an illustration. Assume you fill it to the 90 per cent level as you indicate in your letter. This means there are 450 gals of liquid in the tank and 50 gals of space for vapor. Suppose the sun shines bright and hot on the tank and raises the temperature of the liquid 20 degrees. This will increase the volume of liquid in the tank 3.2 per cent as propane will expand about 1.6 per cent for each 10 deg. temperature rise; 3.2 per cent of 450 gals is 14.4 gals and the volume left for vapor is only 35.6 cu ft.

Now, as mentioned above, the vapor is superheated and does not condense as the liquid reduces the vapor space. This reduction in vapor space from 50 cu ft to 35.6 cu ft is enough to raise the pressure from 200 psig to nearly 260 psig at the elevation of your city (approximately 600 ft).

Some propanes contain one or two per cent of ethane. This low-boilingpoint compound will tend to raise the vapor pressure, too.

Relief valves are set at the factory with an allowable tolerance. If this tolerance is taken on the minus side and is only 2 per cent for a 250 lb start to open the relief valve, the valve will pop at 245 lbs. Once a relief valve does pop, there is a good chance that it will pop at a still lower temperature the next time.

So, add together a number of factors, all seeming to work against you, and troubles develop. Maybe you had better start tapping those tanks off a little sooner during the hot summer months, place a little shade over them, or check the relief valves and gauging devices to see that they are in proper condition .- Ed.



Products with strong, loyal *customer acceptance* are the easiest to sell... and easier sales mean *more* sales, and *more* profit.

WARM MORNING Gas Heaters have this sales-making customer acceptance that is so important to you. Widely known and long associated with fine quality and top performance, WARM MORNING is a name people know and trust.

Add to those benefits, the sheer beauty, outstanding features and reasonable prices of WARM MORNING Gas Heaters and you have the winning combination in space heater sales.

Write for full color
literature, and prices – and
information about our
attractive broadside mailing
program and other powerful
advertising support for dealers.

Warm Morning

GAS HEATERS

LOCKE STOVE COMPANY 114 West 11th St., Kansas City 5, Mo.

"Let's talk about Profits!"



L. V. "DICK" CLARK, Sales Manager, MISSISSIPPI TANK COMPANY, INC.

"To be more specific, let's discuss your profits . . . or the profit you didn't make! Think back, if you will, on last season's operation and ask yourself these questions: Could you have realized additional profits if you could have delivered more gas per trip, with resulting savings on truck fuel, time and labor? Second, did you lose money because of equipment laid up in the shop for costly repairs? Finally, could you have made more money if you'd had additional delivery units or transports?

"If your answer to any of the questions is 'Yes,' then we need to sit down and talk about Mississippi Tank equipment. This is my personal invitation for you to call me collect and let me show you how it can improve your profit picture. If you want to make more money this season, the time to act is right now! My number in Hattiesburg is JUniper 3-0262. Call me today."



MISSISSIPPI TANK COMPANY

INCORPORATE

HATTIESBURG, MISS.

JUNIPER 3-0262

A GREAT LINE OF TANKS... FOR GREATER PROFITS



Unigas President William C. Ulett is known as one of the top LPG operators on the west coast.

Unigas doubles its gallons-per-mile deliveries

WILLIAM W. CLARK . Editor

IF YOUR COMPANY WAS STARTED FROM SCRATCH AND GRADUALLY GREW INTO A MULTI-PLANT OPERATION, you might find that your delivery methods grew, along with it, in Topsy fashion.

If your routing and scheduling is afflicted with Topsy-itis, you might take a leaf from William C. Ulett's book. A friend of his did, and saved 600 miles per truck the first month while delivering the same number of gallons as before.

Ulett is the founder and president of the 27-year-old United Propane Gas Service, Inc., which headquarters in San Francisco and serves six districts in southwestern Oregon and four in central and south-central Washington. The 10 district headquarters cities have these intriguing names: Coquille, Bandon, Coos Bay, Reedsport, Gold Beach, and Brookings, Ore., and Wenatchee, Sunnyside, Toppenish, and Yakima, Wash.

Nearly all of Unigas' growth has been from within, yet over the years a great deal of control has been placed in the hands of the district managers. One result of this was that there was no great amount of uniformity among them in their dispatching methods.

Three years ago Ulett decided that the time had come to increase the efficiency of the delivery procedures. Four different systems were then in use:

1. In some districts, the driver

was in complete control. Most of these drivers were "old hands," highly experienced, and knew the terrain and the customers so well that the district manager let them do virtually all their own dispatching. Management was satisfied that it had no problems along their routes.

2. This system was something of a modification of the first. The driver was still in control of his routes, but radio dispatching had been added to increase his deliveries. After he had left for the day's run, the manager would frequently call him by radio to add other stops to his route. Five of the company's trucks were radio-equipped.

3. This method was more scientific than either of the above. In some offices, for some routes, Unigas has set up a Kardex file, each pocket of which contained a card for an individual customer. The card held the usual customer information-last delivery date, number of gallons delivered, percentage of tank capacity delivered. After a year, a pattern of both summer and winter usage would emerge, and the projected date for the next delivery could be determined. This would be indicated by a small, movable tab placed in the visible margin of the card file. The margin was subdivided by weeks, and the tab was moved to the appropriate week each time a delivery was posted.

Using this system, the driver

A BPN Exclusive

would check through the cards each morning before going out on his route. By the end of the week, he would have covered every account tagged for that week.

4. This was a refinement of method No. 3, the principal difference being that the manager would take over the job of controlling the routing. Each afternoon, shortly before the end of the working day, he would make up a route sheet for the following day, using the card system. By estimating the number of gallons that each customer could be expected to require, he would "book" the entire capacity of the truck. At the bottom of the route sheet he would add three or four alternate delivery points just in case his estimates were high.

Up until three years ago, all four systems were being used simultaneously. Then Ulett decided to take a long, hard look at them, to see how delivery efficiency might be improved.

At the time, the company had half a dozen old tank trucks of 900-and 1100-wg capacity that were ready for retirement. Ulett wanted to upgrade them—increase the capacities, step up pumping speed, improve the efficiency of the fleet. But simply having better equipment was not enough. Was Unigas getting the full potential out of the old?

He checked the records to see. They showed that truck deliveries per mile were too low, and that they



This 2450-gal tank truck is the latest addition to the Unigas fleet. Custom built, it was designed to implement a program to increase delivery efficiency throughout the company's 10 districts.

varied all the way from 11.2 gal. per mile in the poorest district to 42 in the best.

He found that in almost every case where a truck was delivering 30 gal. per mile or more, the manager was doing the major part of the dispatching work. Ulett concluded that on these routes, both the driver and the manager knew the territory very well, but the driver, left to his own devices, was prone to fall into inefficient habits. Says Ulett, "Some drivers would find a favorite route where the roads were better or pleasanter to drive, and they would follow those roads even if they were out of the way." The sequence of deliveries might also be somewhat less than the best

So it was obvious that closer control at the management level was needed.

The first half of the program was an extensive rehabilitation and replacement of smaller trucks. Those in the 900- and 1100-wg capacity range were replaced. The idea behind this program was to achieve proper sizing of the vehicle to the job. Eight or nine hundred, or a thousand gallons per day per vehicle is not enough to make a truck pay out, according to Ulett. His aim is to keep the trucks delivering at peak capacity all day long. Therefore, each truck should take as large a load out every day as can be delivered in the allotted working

Usage, terrain, and market sat-

uration varied from district to district. Therefore, when the 900's and 1100's were retired, the existing equipment in the 1400-1600 range, which was still good, was shifted into their territories. The new equipment which he ordered, in 2300- and 2450-wg sizes, was put in place of these vehicles.

The new equipment was so designed that it would deliver at a rate of 50-60 gpm, and the old was repiped to achieve the same speeds, as nearly as possible.

There was, of course, still some difference in operating speeds among the various vehicles. In addition to diverting the largest trucks to the "best" territories, Ulett also shifted the fastest equipment to the most efficient territories, the slowest to the least efficient. In this way, he managed to increase the delivery performance throughout all districts: those with the poorest performance improved their work, since their equipment was better than what they had been using. As for the best, they were able to do even better.

(Specific improvements in equipment that yielded performance are detailed in the accompanying article.)

Then Ulett went to work on the routing problem. Where there were any problems in a branch, he asked the manager to do the routing. Each afternoon, the manager concerned would prepare a schedule which would assure a full dump for the day following. He was also

obliged to give consideration to the mileage between customers, and to try to cut it to a minimum consistent with a high delivery rate. He was urged to look beyond the current week's schedules if needed; perhaps, explained Ulett, even though a delivery date might be a week away, the driver might be able to save two or three miles off a later run by sandwiching the customer into the route a week early.

"There was another factor that had to be eliminated—habit," says Ulett. "After a driver had been on a route quite a while, he would begin going to the same place at the same time at certain intervals. For example, he would always try to be at the same service station every third Thursday because he knew Mrs. Jones would be there waiting for him to fill her bottle with gas. She knew she could count on him. It was a convenience to the customer for him to always be there at the appointed time.

"It may have been good for public relations, but it was costly. Many times the driver would take so much time keeping a standing appointment of this sort that he would have only enough time to deliver 700 gals. or so for the entire day.

"He was doing the customer a favor, and he thought he was doing the company a favor, too. But for the sake of a couple of \$5 sales, he was costing the company a lot of wasted time and undelivered gallonage."

Ulett issued a ruling that a truck should not go out until the day's schedule was full—and then some—and it should never come back until it was empty.

"If the manager can't be assured that the truck can deliver a full load, he keeps it off the road for the day," says Ulett. "He puts the driver to work doing something else—service work, preferably, but if there is none of that to be done, housekeeping at the plant. We give him a paint brush or a hammer, and put him to work right at the plant."

To police this practice, he instructed the districts to keep a weekly and a monthly report of gallons delivered per truck tank mile. By the end of the month, the manager is able to spot trends and trouble areas.

"Any branches that have problems with low gallon-per-mile deliveries are required to keep a daily record," explains Ulett. "This shows the gallons per mile delivered today and gallons per mile for the month to date. It's most helpful. If a district has been running, say, 42 gal. per mile all month, then suddenly falls off to 14 for the day, the record shows it immediately. The performance is fresh in the minds of the manager and the drivers. He studies the record with them and they analyze it to see what went wrong.

"This makes it a management problem. In other words, what we have done is inject more management into our routing, making it less automatic and mechanical."

Individual problems in routing had become buried, says Ulett, and it takes a system such as this to uncover them. For example: "In one district, we had a customer who was located 15 miles farther out than the customer who was closest to him. He had a 150-gal. tank, and was using 200 gal. per month or more. This fact necessitated two trips per month just to service him. At 15 miles each way, that's a 30-mile roundtrip, or 60 miles a month.

"There are two obvious solutions to a situation of that sort—you either give him a bigger tank or you pick up some more customers in that 15-mile stretch to make servicing him worth while. Or you do both.

"The point is, this problem was an obvious one, but in a branch serving more than 700 customers, it had been buried. Management had not realized the situation existed."

Ulett tells of one startling exam-

ple of what attention to such situations can mean. "In one branch, we had six scattered accounts that were not profitable. Simply by selling two additional accounts and increasing the tank sizes on all six, we raised the district's average gallons-per-mile from 22 to 32."

Why hadn't this situation been rectified before? "Everybody was busy and the manager hadn't thought to check up on it."

In the three years, Unigas has almost doubled its gallons-per-mile record throughout the company. One branch, which was running 28 gallons, has now hit 69.

This is the system Ulett showed a fellow L.P. gas dealer. The man adapted it to his own operations, using the daily record. He put up a big blackboard in the plant on which were recorded gallons-permile, day by day. Within just one month he had reduced the total mileage on 10 trucks by 6000 miles, without any reduction in number of gallons delivered.

The thought of a perfectly good truck parked as much as 1 week to 10 days per month, as Unigas' are now, might jar someone who is depreciation- and cost-of-capital conscious. But as Ulett says, the less time the trucks are on the road, the less the possibilities of accidents, the less gasoline is used, the lower the wear and tear. And the plants look better, the drivers are upgrading their status by getting into service work, and they have more time to make sales that will increase their volume and make it worth while to put the trucks back to work full time.

In summation, Ulett says: "We have found that if a district is much below 30 gallons per mile average, it is not usually a profitable operation (price and other factors do affect it, of course). Profits really start to rise when you begin to exceed 30 gal.

"I have found that gallons per mile is a 60 per cent factor in determining overall profits."

Rear-quarter view shows the controls cabinet and hose reel assembly. The trailer hitch is used occasionally when the truck is called upon to haul a small trailer into remote areas. FOR MORE DETAILS ON THE VEHICLE, TURN THE PAGE.





Unigas doubles its gallonsper-mile delivery

How Unigas upgraded its fleet

UNITED PROPANE GAS SERVICE'S BOBTAIL FLEET now consists of tank trucks with capacities of 1400, 1600, 2300 and 2450 wg.

When the company went into its new routing and delivery improvement programs three years ago, the 1400's and 1600's were repiped for faster delivery and the 2300's and 2450's were especially built to the company's specifications by Casey Jarvis of Jarco Engineering, Corona Del Mar, Calif.

The older, smaller trucks were timed with a stop watch and found to be pumping at somewhere between 17 (for the worst) and 32 gpm. Now almost all vehicles in the fleet are delivering at a rate of 50 to 60 gpm.

Plumbing includes Fisher internal valves with 3-in. openings, $2\frac{1}{2}$ and 3 in. piping to the 2-in. Blackmer pumps, $1\frac{1}{2}$ -in. Neptune Printometers, 1-in. liquid hose with a $1\frac{1}{2}$ -in. Chiksan connection on the hose reels, and 3_4 -in. vapor hose. Because of the terrain in which Unigas operates, all units are equipped with 100 ft. of hose.

For speed in handling, the newest trucks were equipped with large-size Ardmore hose reels. A "level-wind" attachment similar to the sliding guide on a fish reel is used to position the hose on the reel as it is retracted.

All the newer trucks, and some of the old as well, are equipped with air brakes, having this air supply available, Unigas specified air motors for the hose reels in place of electric motors. These have definite safety and operational advantages, according to Ulett. With air motors, no vapor-proof wiring is needed. There are no electric switches into which mud could be splashed. "They used to clog up about once a year," says Ulett, "As a result, we had to wire extra switches for use in emergencies."

Furthermore, with an air motor the reel can be stopped simply by grabbing the hose. With an electric motor, if the current refused to go off, the hose could continue to wrap itself around the reel, flapping and doing damage as it did so. "It was also a safety hazard," says Ulett.

Air motors can be regulated to optimum pressure for manual stopping. Unigas sets its trucks at 125 psi for the break-in period, cuts back to approximately 70 lbs. on the pressure later.

Another advantage of air was that it allowed the installation of an air brake control lever beside the torque converter control handle in the cab. This is arranged so that the driver always sets the air brakes before he leaves the cab. This means the

air is on while he is placing his chock blocks in position—and he is not depending on an inconvenient hand operated emergency brake.

All plumbing hangs from the tank, preventing vibration and potential leaks in the piping. The pump, the piping, the fenders and platform all are mounted integral with the tank so that it will be easy to move to another chassis.

Jarco used welds as much as possible throughout. Fittings are flanged. There are no unions in the system.

The newest trucks—the 2450's—are C800 Tilt-cab Fords, powered by propane. This model has excellent visibility, which is particularly important in the market areas served by Unigas. Its 135-in. wheelbase, 40 in. less than conventional, improves maneuverability. Weight distribution is also excellent. Conventional trucks have about a 25 per cent loading on the front axle; this model can be as high as 33 per cent, according to Jarvis. "However," he says, "it doesn't quite measure up to that because of all the extra equipment we have on the rear end."

The terrain also dictated the choice of drive, steering, and braking equipment. The newest units have power steering, Allison transmatic transmission, and the air brakes previously mentioned. The transmission, which was developed for heavy duty construction work, is expected to give much longer

Closeup of liquid hose reel shows how level-wind attachment positions hose as it is retracted. The attachment moves back and forth on a worm gear.



life than those previously used. It also has an automatic grade retarder which gives about two to three times as much drag as would ordinary engine compression.

Jarvis had to engineer out a problem which arises when a power takeoff unit is engaged with the automatic transmission. When the operator wishes to start up the PTO from the rear of the truck, he must somehow put the truck in gear because the idler gear turns when the truck is in neutral, but stops when it is in gear.

Obviously, the problem is two-fold: the truck must not run away, and the operator must be able to shift gears from the rear of the truck. To solve the first problem, Jarco installed a Cal-Gas Equipment Corp. safety system, which locks the brakes when the unloading hose is not in the special receptacle on the truck. For the second, he devised a linkage running from the rear of the truck into the cab that shifts the gears remotely.

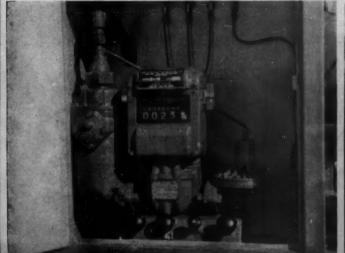
Once the PTO is engaged, the operator can then shift the transmission back to neutral, still from a remote position.

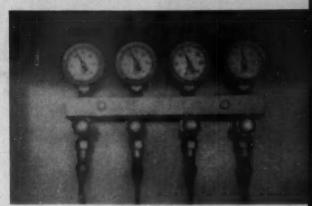
These controls are located in a rear-mounted cabinet. The actuating rod for the internal valve protrudes past the cabinet door when in the open position, so the driver must first close it before he can close the door. This prevents him from driving away with the liquid valve open.

Mounted in the back wall of the cabinet are four gauges which can be used to check on pumping capacity and operation by revealing any pressure drops. One gives a reading of tank pressure. Another gives a reading on the pressure downstream from the internal valve and pump strainer. A third, connected to the downstream side of the pump, tells the condition of the bypass valve setting. The fourth communicates with the downstream side of the meter to indicate whether the strainer is clogged.

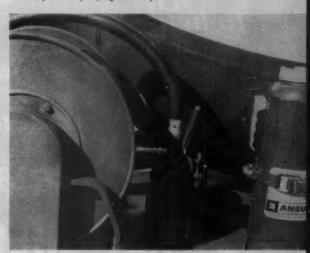
These gauges are activated only on occasion, as a check. The assembly was designed by Unigas.

Central panel grouping. The internal valve is opened with a throttling rod which, when open, extends past end door sill. The door cannot be closed until the control rod is pushed in.





These four gauges, mounted inside the cabinet, read pressure at the tank, the internal valve, the bypass valve, and the meter. They are used to double-check on operational efficiency of the pumping assembly.



A safety brake system, which must be engaged before truck can move, is mounted just forward of the starboard hose reel. This prevents the truck from creeping when the power take-off is being engaged with the transmission.

Because the idler gear turns when the transmission is in neutral, the truck must be in gear when the PTO is engaged. It can be shifted in and out remotely, through linkage which runs from the operator's position at the rear of the truck to the gear chiff lever in the cab (below). A hinged, U-shaped arm which does the shifting is folded away when not in use.



SCRAP

LUMBER

ROOFING

PAVING

PLUMBING

AUTO REPAIR

CERAMICS

METALWORKING

to help you get
those industrial loads
BPN presents

8 INDUSTRIAL MARKET FACT SHEETS

L.P. gas is literally the most versatile fuel in use today. An all-inclusive list of its possible applications would run into the hundreds. Dealers in even moderately diversified areas—areas having some scattered small industry, farms, and commercial establishments—should never want for prospects. Among the industrial load-building possibilities are many plants that offer excellent potential. In the following 16 pages, BPN lists eight of the most promising, showing their aggregate size and importance, and describing their characteristics, the processes in which they use LPG, and the recommended methods for selling to them.

the industry-

Its products and/or services—

The humble junkyard, that ugly duckling that always seemed to be present in every town, has grown up into the scrap industry. It is now a bonafide industry with its own trade associations, industrial magazines, representatives in Washington, and public relations people. Perhaps symbolic of our counsel-crazed age, it even offers a counseling service. It "counsels industrial firms on the best and most profitable methods of collecting and segregating their waste materials," according to the Institute of Scrap Iron & Steel. The primary mission of the industry, however, is still a product, scrap, not a service.

The industry actually may be divided into four distinct elements, each with its own product: iron and steel scrap, nonferrous scrap, auto and truck wrecking, and waste materials. The main difference between the first two elements is the type of metal involved, for both process scrapped machinery, equipment, etc., for producers of the individual metals. Auto and truck wrecking is much the same with the exception that much of the material is salvaged for reuse as used parts. Waste materials are metallic cuttings, shavings, and similar waste-basket type by-products of production that can be processed for metal producers.

Its size-

"Because most of the firms in this industry are small and privately owned, much information . . . is unavailable," says ISIS. This group reports that it has approximately 4000 firms which have a gross annual sales volume of \$2 billion to \$3 billion. The National Auto & Truck Wreckers Assn. reports that it has some 10,000 members, but puts no value on its scrap and salvage sales. Statistics on the other elements of the industry could not be obtained.

Its trends-

Both trade associations report that the industry is growing, as well it should with all the American Industry talk of dynamic obsolescence. While neither spells them out in any detail, both report that new systems and processes are changing the industry. The auto and truck group mentions "new methods of dismantling and preparation of scrap." Says the iron and steel group: "There are processes to improve the quality of ferrous scrap by freeing it from likely contaminants to a higher degree than before. (In the next five or ten years, there will be) greater use of mechanical equipment than before. Improved scrap will be tailored to the customers' needs to a greater degree."

Its members, close up-

Most scrap companies are small. However, the definition of small depends on the element of the industry. Among auto and truck wreckers, small firms have 1 to 5 employees, medium-sized ones have 5 to 20, and large ones have 20 to 50. In the iron and steel scrap business, small firms have up to 10 employees, medium ones have 11 to 30 men, and large ones have over 30. Auto and truck wreckers are everywhere, but other elements of the industry are usually located in industrial areas.

What are the potential uses for LPG?

The main use is the cutting torch. And the main use for the cutting torch is making small pieces out of big pieces. However, there are two

How do you sell the prospect?

Both NATWA and ISIS agree that the man to contact is the owner and both also agree that your big selling points should be fuel costs, first, and time and manpower savings, second. After these first two points, there is considerable disagreement on the remaining ones. NATWA lists them in this order: portability, clean combustion, good service by the fuel supplier, controllability, and effect on quality of finished product. ISIS rated them this way: effect on quality of finished product, portability, clean combustion, controllability, and good service.

A little documentation on that economy angle should prove helpful. Here are some of the actual comparative fuel cost savings BPN has obtained from various sources in recent years: Phillips Petroleum Co., savings of 78 to 86 per cent; Standard Oil Co. of New Jersey, savings of 65 to 79 per cent; Harris Calorific Co. (torch manufacturer), savings of 80 to 90 per cent; Bucyrus-Erie Co. (torch user), savings of 80 per cent; and Scrap Disposal Co. (torch user), savings of 90 per cent. In addition to cutting the fuel bill to anywhere from ½ to 1/10 of what it was with acetylene, LPG also offers tremendous manpower savings.

It is an indisputable physical fact that one cylinder of propane will cut as much scrap as eight cylinders of acetylene. That, of course, means that cylinder handling—by a highly paid man—is reduced 87.5 per cent. Also, LPG torches offer automatic lighting, which is a great time saver, especially with intermittent work or windy weather.

LPG torches offer a considerable number of other advantages, including—frequently, but not always—reduced oxygen consumption and faster cutting. The two big additional advantages, however, are cleaner cutting and greater safety. Termed by many as propane cutting's greatest advantage is its ability to turn out better work—a cleaner cut with sharper edges, less adherent

How should the account be serviced?

Small companies, particularly auto and truck wreckers, will prefer cylinders. Large companies will want tanks, as big as 12,000 gal., if not

other uses: stripping the wanted scrap from unwanted scrap of a different quality or composition, and stripping off parts to be re-used.

slag, and less tendency to warp thin material. This might not seem too important for scrap cutting but in auto and truck wrecking, it can mean more successfully salvaged parts. And it bears increased importance with ISIS comment that there is a trend to improved quality scrap with less contaminants.

Safety is LPG's long suit. First, propane will not backfire, meaning there are no flame hazards and attendant loss of time. Second, propane reduces the fire-explosion hazard to nearly 1/9th that of acetylene, since the explosion range of a propane-air mixture is from a 2 to a 9 per cent concentration. With acetylene, the range is all the way from 2.5 to 80 per cent. Third, the propane flame is not incandescent, so it is less painful to the eyes and causes no eye fatigue. Fourth, propane is non-toxic.

A demonstration is a must. If the prospect is is fairly large, precede the demonstration with a well-documented sales talk in the front office. Exactly what equipment should be taken to the demonstration and exactly what procedure should be followed depends on the torch manufacturer's recommendations. Every LPG salesman is not expected to become a cutting expert, but he should be expert enough to explain how the torch works and why it works the way it does, demonstrate how it works, teach the cutter the proper way to adjust the flame, and prevent LPG from getting an unfair test. A most important point is that you must never attempt to show the cutter how to do the actual cutting. Before you change the torch tips to the propane type, ask him to make an acetylene cut for comparison purposes. Later have him match this with a propane cut. Then, tell him to cut anything and everything he chooses. The cutter can be the key to your sale. Satisfy him that propane does a better job, and-with management convinced of the potential savings—there can be no doubt about a sale.

bigger. There is one disadvantage to this load—iron and steel scrap production usually parallels steel production, which is highest in winter.

the industry-

Its products and/or services—

With the possible exception of steel, nothing is more familiar to the average person than wood. This is especially true in the United States, since we use more lumber than any other nation in the world. The National Lumber Manufacturers Assn. estimates that our 1960 per capita consumption was 204 bd. ft. NLMA estimates 1960 consumption at 37.7 billion board feet. Where did all this wood go? Nearly three-quarters of it (72.3 per cent) went into building and construction. The second biggest use, industrial (11.7 per cent), includes furniture and other products. Nearly as big a use (10.8 per cent) was boxes and crating. Of the remainder, 2.8 per cent was used by the railroads and 2.3 per cent was exported.

Its size-

In 1958, the latest year for which such statistics are available, the United States produced 27 per cent of the world's lumber production. The 1954 Census of Manufactures showed that the combined forest products industries employed a total of 1.51 million people in 56,761 manufacturing establishments. Those figures were 9.7 per cent and 19.8 per cent, respectively, of all U. S. manufacturing. The value added by manufacture—a highly accurate figure for determining the overall contribution of an industry—was \$9.73 billion that year; and that was 8.3 per cent of the national total.

Its trends-

Despite all the substitutes modern technology has found for humble wood, lumber production and usage continues at a merry clip. The Fifties were the most productive lumber decade of the 20th century. Yet, not once during this period was the all-time record exceeded. That record was set in 1909, so lumber has been a big industry for a long time.

It's comforting to know that annual growth of lumber in this country exceeds removal (by all causes) by 25 per cent, so we won't run out of wood.

The biggest area of changing trends is the profits picture. While the wholesale price of lumber remained quite constant during the last decade, average weekly earnings went up at a rate exceeding the cost-of-living rise and profits dropped sharply.

Its members, close up-

Of the 56,761 forest products industries establishments reported in the 1954 census, 41,484 were in lumber and wood products. (The remainder were in wood furniture and fixtures and in paper and pulp products.) That 41,484 total was broken down like this: 12,865 logging camps and contractors, 19,778 sawmills and planing mills, 261 veneer mills, 175 shingle mills, 205 cooperage stock mills, 68 excelsior mills, 3,348 millwork plants, 255 plywood plants, 231 prefabricated wood products plants, 1,513 wood container plants, and 2,785 miscellaneous wood products plants.

Sawmills and planing mills, of course, are the backbone of the industry. As such, they merit a closer look. Most of them are small. In the 1954 census, 50.4 per cent, or 9,961, had less than five employees; but this group produced only 4.6 per cent of the lumber. On the other hand, only 141 mills (0.7 per cent) had more than 250 employees, but they accounted for 23.5 per cent of the production.

What are the potential uses for LPG?

Freshly-sawed lumber usually contains from 50 to 200 per cent of its dry weight as water and must be dried or seasoned. Acceptable moisture content ranges from 5 to 17 per cent, depending on use. Satisfactory seasoning can be achieved by air drying, but it is expensive to have capital and space tied up from two to six months or longer until the required moisture content is reached. And in some cases, even this much air drying will not produce the desired result. Thus, a lumber kiln, which accelerates the drying process, becomes a necessity. Depending upon the type of wood, its thickness, and intended use a kiln can reduce drying time to from three days to two weeks. The job could be done even quicker, but the wood would split, check, twist, etc., so a humidifying system is incorporated.

A lumber kiln is an enclosed steel, concrete block, brick, or wood building with one or more large doors to admit the lumber, usually via a fork-lift truck. Lumber kilns range from 2,000 to 20,000 cu ft, with a capacity from 10,000 to 100,000 bd ft. The kiln must have a heating system adequate to maintain a maximum dry bulb temperature of 220 deg. while carrying the vaporizing load of the humidifying system. Net

hourly imput ranges from 15,000 to 40,000 Btu per 1000 bd ft, depending on speed required and wetness of the lumber. The humidifying system must be able to provide from 5 to 100 per cent relative humidity, usually by water sprays, steam, or evaporating pads. An internal fan or external blower circulates this controlled atmosphere at velocities of from 200 to 800 cfpm. Wood separators keep the stacked lumber apart, enabling the rapidly moving air to reach all surfaces. The entire operation is maintained by temperature and humidity control systems.

The kiln found in a plywood plant is completely different, since it is a "continuous" kiln, as opposed to the "periodic" lumber kiln (see Ceramic Industry Data Sheet). A plywood kiln, is a tunnel kiln through which several sheets of green veneer pass at one time on several levels. The kiln contains two areas or bays. In the first, burners with imputs totaling approximately 3 million Btu maintain a temperature of close to 400 deg. In the second, a high speed fan (30,000 cfpm) cools the veneer to handling temperature. Humidistats and thermostats control the amount of fresh air taken into the first bay and the amount of fuel taken in by the burners.

How do you sell the prospect?

For this load, you may very well find yourself competing against a "new" fuel—wood, or wood waste, to be more specific. Such a system usually uses steam coils and steam sprays. Wasteful and inefficient, it is only economical because of the readily available supply of fuel. Its unwieldiness and an increasing market for sawmill wastes has led to the use of other fuels, including LPG, natural gas, oil, and coal; and to abandonment of many steam kilns for direct-fired units.

Modern fuels and modern methods mean savings. For example, an Oregon plywood plant found that its new propane-fired kiln offered these advantages: less than half the floor space of steam-heated models of similar capacity was required; erection was easier; initial cost was 35 per cent less; the kiln atmosphere was changed, eliminating an in-kiln fire hazard and

reducing fire insurance premiums; higher temperatures raised production 20 per cent; and the higher temperatures reduced kiln maintenance by "setting" the sap more quickly, preventing it from dripping or catching fire. Such examples are important to lumber mill operators who are faced with increased wages, a steady wholesale price index, and decreasing profits.

Another thing to bear in mind is that the smaller mills need cost-cutting devices even more than the big companies. The mills with less than 20 employees, for example, have 28.0 per cent of the industry work force, but produce only 19.7 per cent of the lumber. You are fortunate if you happen to be in the chief lumber production areas, the Northwest or the South, but lumber is produced in every state in the union—most of it—beyond the mains.

How should the account be serviced?

Probably a 10,000 to 20,000-gal. bulk tank will be needed, and the lumber company will probably prefer to lease it. Chances are you'll fill

it once or twice a month, and the nicest thing about it is that lumber production generally hits its peak in summer.

MARKETS INDUSTRIAL

Its products and/or services—

The roof is so necessary to man's very existence that much of his struggle here on earth is devoted to simply keeping a roof over his head. It appears there will always be a roofing industry.

Its size-

The size of the roofing industry should vary in direct proportion to the population and the standard of living. Since both factors are ever increasing at everincreasing rates, the roofing industry, already a big one, should get bigger.

Right now, there are 22,000 roofing contractors who employ 110,000 skilled men, who annually apply \$1.8 billion of roofing, according to American Roofer & Building Improvement Contractor magazine. Of that total, one-third, or \$600 million is for flat roofing of built-up asphalt, the kind that can utilize propane during its application.

Its trends-

Roofing is getting bigger. It has trebled since 1939, when there were just 8000 roofing contractors. And in 1970, says AR & BIC, there will be 30,000 contractors who will employ 200,000 men, who will be more skilled than today's roofers. The magazine notes that the built-up roofing portion of the roofing industry has enjoyed an unprecedented increase from 2 million sq ft in 1939 to 300 million sq ft in 1960.

Besides this great growth, other industry trends involve the asphalt roof. The one unfavorable trend along this line is the introduction of plastics. To date far outshadowing the plastics threat are two architectural trends. One is the considerable use of tar and gravel roofs for residences, particularly those of contemporary design. The other is described thusly by AR & BIC:

"Business interests are changing the picture by their preference for acre-sized industrial buildings, one-story high. The roof area of a multi-story building averages five per cent of the wall area. But the roof area of modern factory buildings is often 200 times the wall area."

Its members, close up-

Most roofing contractors are small firms, according to AR & BIC. About 45 per cent of the business, \$810 million, is done by small firms with 2 to 5 employees. About 35 per cent of it, \$630 million, is done by medium-sized firms with 15 to 30 employees. Large firms with 35 to 200 men account for only 20 per cent. Many of these companies offer a variety of services with asphalt shingle roofing the most important, built-up asphalt roofing second, and weatherstripping the least important. Some of these companies operate over a territory with a radius of about 100 miles. AR & BIC estimates that about 15 per cent of the roofing contractors are in rural areas. They are usually smaller companies which offer a large variety of services.

What are the potential uses for LPG?

All sources agree that roofing contractors have primarily one use for LPG, heating asphalt and/or tar. There is some disagreement, however, on how much heat LPG supplies. American Roofer & Building Improvement Contractor says that in 1960 about 1.3 million tons of asphalt and

pitch were melted in roofers kettles. AR & BIC says that about 85 per cent of the total was heated by kerosene, the remainder by LPG. On the other hand, another magazine in the same field, Roofing Siding Insulation, says that LPG has 50 per cent of this market.

How do you sell the prospect?

Both magazines agree that your approach should be on quality, not price. Says RSI: "The inroads of LPG (are) attributable to the finer qualities of this fuel, as opposed to kerosene. This trend is taking place in spite of the fact that LPG is higher in cost than kerosene—which is highly significant in our cost-conscious industry."

Says AR & BIC: "Quite frankly, we think the LPG producers are missing a bet by failing to acquaint and sell the roofing industry on the value of their products. They seldom use direct mail or advertising to reach roofing trade periodicals or roofing contractors. They have depended on kettle manufacturers to sell for them. LPG has three advantages. First, its controls prevent overheating and consequent loss of volatile oils required on the roof. Second, its controls release labor, since the kettle does not require constant attention. Third, it eliminates the fire hazard of filling fuel containers with kerosene." AR & BIC backs up this statement by rating the advantages of LPG in the following order, starting with the most important: controllability, effect on quality of finished product, fuel costs, time and manpower savings, portability, clean combustion, and good service by the fuel supplier.

Byron Venis says: "The foreman on the job is the man to see: he'll sell your burner to management once he sees it work."

Who is Byron Venis? A Toledo LPG dealer who—way back in 1955—sold 15 tar kettle customers in three weeks and wrote an article (for BPN) telling how he did it. The Venis approach still sounds good, so let's quickly run down his seven-step method:

How should the account be serviced?

Probably just 100-lb cylinders will do the job. The larger contractors will buy them, the smaller ones will lease.

The load is one cylinder per day per kettle.

- 1. Stake out your prospects. Select a warm, sunny day when you're sure roofers will be working. If you know where roofing is in progress, go right to the job. Otherwise, call roofing contractors, ask where their crews are, whether tar kettles are on these jobs, and, if possible, get the foremen's names.
- 2. Go armed. Dress in work clothes and bring: heavy gloves, a conversion burner, a 100-lb. filled cylinder, hoses, fittings, and tools.
- 3. Use the bold approach. This has to be a fast sales talk because the foreman is working. Walk up to him and hand him the burner, saying "Here's something that will save you time and money, do a good job of heating your asphalt or tar, and do away with kettle pumping."
- 4. Elaborate on the selling points you've just made. Get him to supply figures such as minutes per day spent tending the kettle, working days per year, and roofers' salaries; then figure LPG's annual savings on a scratch pad.
- 5. Answer the prospect's questions. Probably one of the first will be on the daily consumption of LPG (about 100 lb per kettle).
- 6. Apply the clincher. Before he has a chance to say he'll think it over, offer to connect the burner: "We can just slip this convertor in without bothering the present fuel system. It won't interfere with your work. You don't have o buy it. Just let me put it in. If you don't like it, we'll take it back and won't charge for the gas." Even if his reaction is negative, leave the burner. A few days operation will convince him, since he won't part with anything that makes his job easier.
- 7. Explain how the burner works. Demonstrate and let the roofer light it a few times. That's important, since an incomplete understanding can unsell your selling job.

And the kettles are busiest from May to September in areas where winter peak loads are highest. AR & BIC reports, however, that in the last 10 years, year-around roofing "has been stimulated."

the industry-

Its products and/or services-

Freeways, highways, roads, streets, alleys, driveways—one cannot set foot outdoors but what he sees the product of the paving industry. As of the latest available (1958—U. S. Bureau of Public Roads), there were 1.138 million miles of paved streets and roads in the country. Of this total, 1 million miles was paved with asphalt and 0.138 million miles was concrete. While that represents a lot of road, it is only a good beginning. There are three reasons for this. First, less than one-third of our roads are paved, for 1.031 million miles are earth and 1.310 million miles are gravel. Second, the federal government has a huge road-building program and most large municipalities have ambitious freeway programs. Third, the tremendously increased number of vehicles on the road—and the record mileages they pile up—are wearing out the nation's roads at a furious pace.

Its size-

There are approximately 5000 paving contractors in the United States. The total annual value of their contracts is around \$2 billion. The majority of that money is paid by state highway departments. In 1958, the latest year for which such figures are available, state highway departments built some 42,000 miles of asphalt roads and approximately 3000 miles of concrete roads.

Its trends—

The industry is growing at a rapid rate—100 per cent in the last five years. And this growth will probably continue at a similar rate, for the reasons spelled out above. Coupled with this growth, new methods, machinery, and materials are resulting in the production of better highways at less cost, a trend that is expected to continue.

The other big trend is the tremendous growth of asphalt or bituminous paving—while the mileage of concrete roads is actually decreasing. In 1930, there were about 40,000 miles of concrete rural roads and that total was growing by approximately 9000 miles per year. At the same time, there were about 80,000 miles of asphalt rural roads and that figure was growing by about 3000 miles per year. In the mid-30's, asphalt usage skyrocketed while concrete dropped. By 1940, there were about 270,000 miles of asphalt rural roads and only 90,000 miles of concrete. By the end of 1958, the asphalt total had shot up to 779,300 miles and concrete had dropped to 71,148 miles. In municipal streets, the gap has not widened to that extent. In 1958, there were 220,198 miles of asphalt and 68,105 miles of concrete, plus brick and block. In addition, there were 76,-148 miles of gravel and stone streets and 40,143 miles of non-surfaced streets.

Its members, close up-

Most paving contractors are small to medium concerns with individual contracts usually around \$20,000 and an occasional multi-million dollar job that raises the industry averages. About 20 per cent of the business is done by small outfits averaging around 20 employees.

By its very nature, highway construction is a mobile business—and a seasonal one. The construction season is limited to a great extent by the weather, but new methods, materials, and equipment—much of it LPG-burning—are lengthening it.

What are the potential uses for LPG?

Since paving supplies quite a few potential uses for LPG, it is probably best to consider them in the order in which they occur.

Before a road or street can be built, the rightof-way must be cleared. Frequently, the cleared timber and brush constitute a serious problem. Work progresses so quickly that the piles do not have time to dry out and become combustible. The customary procedure is to spray them with gasoline or diesel oil. A flame-thrower type propane torch will burn the brush more quickly, more safely, and more economically.

Uses during actual construction depend on the type of construction. If the road or street is concrete, about the only LPG use is for winter curing-preventing fresh concrete from freezing before it can dry. To extend the construction season or to make it last all year, contractors have employed a number of manufactured and make-shift heating devices. Kerosene and oil have been used, but are dirty and dangerous. Since the burners frequently go out, they need a man in attendance. LPG heaters solve these problems. And an effort is now being made to substitute large capacity frost protection devices (one is the Heat-Mobile, built by Robinson Blower & Engineering Corp.) for the small heaters. If the road or street is asphalt, propane enters the construction picture in many places. Usually handled at temperatures of 275 to 450 deg., asphalt must be picked up in refineries and trucked to an asphalt plant. To keep the asphalt in a liquid state, the truck tank must be heated, and the best method is a propane burner in a fire tube. At the plant, the asphalt is kept warm by circulating hot oil or steam through coils in the asphalt tanks. Propane's clean-burning ability to operate unattended makes it highly desirable for heating oil or making steam. The

How do you sell the prospect?

There are two markets here, paving construction and paving maintenance, and two types of prospects, the paving contractor and subcontractor and the local or state government.

This is the type of load that is best sold by testimonials.

How should the account be serviced?

That will depend on whether you're selling a government agency or a private firm. The government will undoubtedly buy all its equipment while the private firm may prefer to lease. biggest use at the asphalt plant is heating the aggregate which is to be mixed with the liquid asphalt. There are two reasons for heating aggregate: the moisture is removed, so the asphalt sticks better to the aggregate; and the two ingredients mix better when they are the same temperature. Here too, propane has proven to be the best fuel. As an example, an article in BPN (February, 1959) revealed that when a Kansas asphalt plant switched from oil to LPG, production increased 25 per cent, quality of product went way up, labor costs went way down, and starting-up time decreased sharply.

Once an asphalt road is built, it must be periodically maintained. Here, LPG really comes into its own. To patch a hole, soften the edges with a propane hand torch, fill the hole with a propane-heated asphalt-aggregate mix, and finish the job with a propane-heated smoothing iron. If the road develops those shiny oil slicks that are so dangerous when wet, a propane-burning road heater burns these surface oils and softens the surface enough to allow a thin layer of crushed rock to be rolled in. If the road develops a wash-board surface the heating and rolling procedure—plus, perhaps, planing with a road scraper—will make it like new.

Concrete roads must also be maintained—by tarring cracks and expansion joints. LPG tar kettles have proven they can do a cleaner, safer, and more economical job.

The state of Oregon equipped its LPG-burning tar kettles with auxiliary hand torches for weed-burning when the units were not warming tar. This opens up the area of subsidiary road maintenance; large weed burners that clean the right-of-way, road heaters that melt ice, hand torches lessen frozen manhole covers, etc.

Remember that safe, trouble-free operation is a prime concern of this industry. Accidents and undue maintenance mean high insurance rates, high equipment replacement costs, and high labor costs. There is a night-and-day difference between LPG and its competitors. Prove this to your prospects, and you'll sell them.

The load might be just a dribble or it might be a flood. One Nebraska asphalt resurfacing job used 1,500 gal. per day, was fed by a battery of 12 1000-gal. tanks!

Its products and/or services—

With the exception of some vacation cabins and backwoods shacks, every dwelling and public building in the country has plumbing. Old buildings have old plumbing that may well be in need of replacement or repair. New buildings need new plumbing and the buildings now going up have more plumbing than ever before: more bathrooms, washers, dishwashers, etc.

Its size-

There are 49,439 plumbing contractors in the 50 states and the District of Columbia, according to the National Association of Plumbing Contractors. Discounting the district and the two newest states, that's an average of 1,027 plumbing contractors per state. The exact numbers vary all the way from Hawaii's 18 to New York's 5,030. Total value of services rendered by these plumbers averages around \$2.5 billion per year. To this total, large and medium-sized plumbing contractors each contribute about \$1 billion. The remaining \$0.5 billion is brought in by small plumbers.

Its trends-

The industry is growing at a 3 to 5 per cent annual rate, according to NAPC. The association notes two trends. First, more mechanical contractors, including plumbers, are now dealing directly with building owners, rather than working through a middleman general contractor. This increases competition. Second, the use of plastics pipe is increasing and is cutting labor costs. In the next few years, concludes the association, we are likely to see more weeding out of financially unstable contractors, mostly because of severe competition.

Another trend to look for is a booming housing construction era in the middle and late Sixties. With it will come increased business for plumbers. Another area of increased business will be a replacement and repair boom as many of the homes built during the post-war housing boom near the 20-year mark. And, while plastic is making great strides, it still has a long way to go before it can ever start really undermining the firmly entrenched position of metal pipe.

Its members, close up-

Plumbing companies vary in size from the single plumber to the huge contractor with 150 or more employees. NAPC classifies some 63,861 plumbing-heating-cooling contractors as to the types of work they do and their Dun & Bradstreet rating. The 49,439 contractors who do plumbing work amount to 77.4 per cent of the total. Here's how the remaining types of work stack up alongside those two figures: heating, 46,750 contractors or 73.4 per cent; warm air heating, 11,789, 18.4 per cent; "wet" heating, 16,000, 25.1 per cent; and air conditioning, 13,709, 21.5 per cent. A total of 15,574 contractors (24.3 per cent) were given no financial rating. The remainder were rated as follows: \$125,000 and over, 1,702 contractors, 2.7 per cent; \$10,000 to \$125,000, 23,558, or 36.9 per cent; \$5,000 to \$10,000, 9,065, 14.2 per cent; and below \$5,000, 13,962, 21.9 per cent. Exactly 35 per cent of the contractors, 22,333, maintain stores in addition to their contracting businesses.



NEW '62 FORD TRUCKS

Get full-time economy that only starts with Ford's low price!

Meet the trucks that make saving money a fulltime business—new Ford Trucks for '62!

In a selection of over 600 models there's a truck that's right for your job, whatever your job... trucks that you can buy and operate at lower cost... trucks that can save you money mile after mile, load after load, year after year!

They save on price. They save on gas and oil. They save on tires and on maintenance—wherever there's a way to save! The full record of Ford economy, covering three years of independent tests, is detailed in Ford's Certified Economy Reports. See your Ford Dealer now. Check out the facts, work out a deal, and drive out a truck that saves money . . . full time!

FORD TRUCKS COST LESS

SAVE NOW ... SAVE FROM NOW ON!





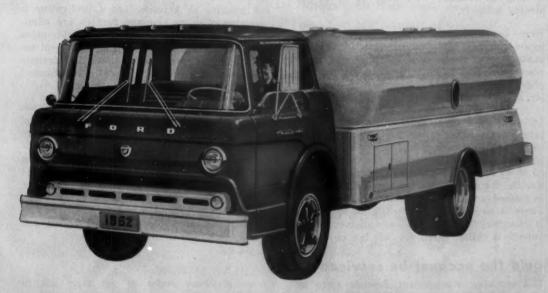
AMERICA'S MOST POPULAR VAN and small wonder! Econoline savings start

and small wonder! Econoline savings start with a price far under any popular ½-ton conventional panel on the market! And they continue saving every day—certified tests have shown that in 16,000 miles, savings in operating costs compared to the conventional panel you may now own could top \$100! Big 4-ft. doors rear and curbside plus 204 cu. ft. of loadspace and a floor that's flat the full length provide for easy handling of cargo.



EXCLUSIVE 100,000-MILE WARRANTY on 401-, 477- and 534-cu. in. Super Duty V-8's is the most liberal in the industry. Each major engine part (including block, heads, crankshaft, valves, pistons, rings), when engine is used in normal service, is warranted by your dealer against defects in material or work-

manship. The warranty covers full cost of replacement parts for 100,000 miles or 24 months (or 3,000 hours if used as a power source for other than propelling the vehicle), whichever comes first . . . full labor costs for 50,000 miles, 12 months or 1,500 hours, sliding percentage scale thereafter.



PRODUCTS OF Ford MOTOR COMPANY

ECONOMICAL HEAVY DUTY V-8's with 292-, 302and 332-cu. in. displacement give you tailored-to-the-job economy at much lower prices than you would expect in trucks with engines of this size. Ford's modern shortstroke design and high compression ratios make conversions to LP-Gas operation simple and economical.

What are the potential uses for LPG?

Two types of LPG-burning equipment, the plumbers pot or furnace and the torch, are used in a total of three different kinds of jobs.

The plumbers furnace, used to melt lead, is by far the biggest potential load. Generally, a plumbing contractor will have about one furnace for every two plumbers. If the company does repair work and small new construction. one furnace will be needed on every truck. If it specializes in housing tracts and large construction jobs, it will probably get by with fewer furnaces per man but a large contractor of this type may still keep 35 to 50 furnaces busy. In the field, furnaces are used to melt lead for pouring joints in soil pipe, for wiping joints, and for repair work. In the plumber's shop, the melted lead is used mainly for prefabricating pipe and joints into components that can be quickly assembled in the field. Much of this work is done in pre-fab assembly yards at large housing tracts. For field work, a furnace mounted on a small cylinder is usually preferred, since it isn't easily knocked over, but is portable. For shop work, a furnace on its own small base offers good flexibility, especially when connected to a large cylinder by a long hose. The latest thing in plumbers furnaces is the new infrared unit manufactured by Wagner Products Corp., the exclusive licensee in this field for the Perfection Schwank infra-red gas burner. The manufacturer says that in one year (2000 hours of operation) the infra-red unit can save \$390 of lead and \$292 of LPG, a total saving of \$682, plus additional savings in labor.

A plumber who uses an LPG furnace has the big advantage of always being able to hook up an LPG torch on a moment's notice. He has two uses for the torch, in place of a gasoline blow torch or an oxy-acetylene torch to solder copper fittings; or instead of acetylene torch or a hammer and chisel to get lead joints out of soil pipe.

How do you sell the prospect?

Seek out the owner of the contracting company or his superintendent. Since LPG is taking over more and more of this industry's load, he may be familiar with LPG—if he is not already using it.

Here—listed in the order of their importance by an equipment manufacturer—are the LPG advantages you should play up: time and manpower savings fuel costs, good service by supplier, controllability, clean combustion, portability, and effect on quality of finished product.

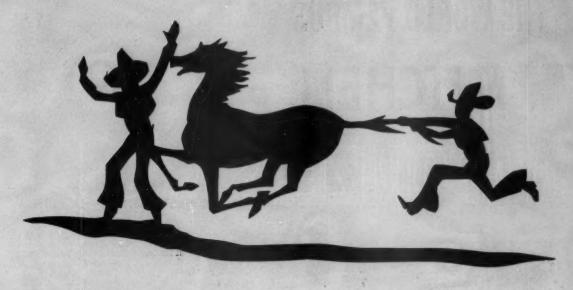
Let's take a look at some other LPG advantages—for plumber's pots. LPG is faster. The heater-up time from a cold start is less than 15 min. for an LPG furnace, as compared to 35 to 40 min. for a gasoline furnace. And frequently, the gasoline pot will not light, must first be cleaned, adjusted, or repaired. LPG is cleaner. There is no soot, smoke, carbon, or odor. This is important for three reasons: equipment maintenance is easier, repair jobs are less objection-

able when made in customers' homes, and there is no health hazard when several workmen use one or more furnaces in a confined area for several hours. LPG is safer. The hazards of spilling gasoline or kerosene and or relighting a warm gasoline or kerosene furnace are eliminated. LPG is cheaper. It practically eliminates cleaning, adjusting, and repairing equipment because it burns more efficiently. An LPG furnace can be operated on either a small or large flame—while the other fuels require a large one.

Many of LPG's advantages as a plumbers' pot fuel also hold when it is used in plumbers' torches. A gasoline blow torch, for example, may take 20 to 40 minutes to clean, fuel, ignite, adjust, and warm up. The LPG torch lights in an instant and is hot enough to use in seconds. As a replacement for acetylene, LPG offers two big advantages: it is less expensive, and it is handier. Since LPG works equally well in either the furnace or the torch, the need for handling and storing two fuels is eliminated.

How should the account be serviced?

The servicing arrangement depends more on the size of the shop than on anything else. The average one-man shop would probably only use 100 to 125 gal. per year. A medium-sized contractor with 10 to 20 men will use more than five to ten times that amount. Some plumbers prefer to get their gas in cylinders, while others want to lease or buy a tank and fill the cylinders themselves. Generally, the gas is used from 20-lb. cylinders for field work, 100-lb. cylinders for shop or assembly yard work.



... rarin' to go"

With winter just around the corner, Sid Richardson is rarin' to go in supplying LP-Gas dealers with their peak demand period requirements of LP-Gas. You are assured of —

Large supply reserves in undeground storage

Prompt delivery via tank car or from Mid-America Pipeline terminals

An established reputation for maximum buyer-seller cooperation and loyalty

Competitive pricing, always

Sid Richardson

GASOLINE CO.

1105 FORT WORTH NATIONAL BANK BLDG. . FORT WORTH, TEXAS

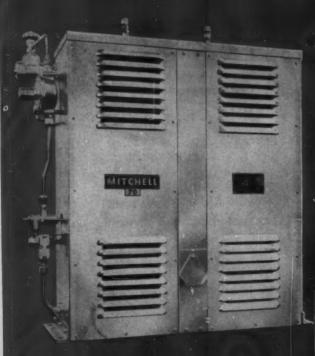
REGIONAL REPRESENTATIVES

H. M. JONES 5123 NO. NEW JERSEY ATWATER 3-7443 INDIANAPOLIS, INDIANA MARVIN L. DOSS 3148 SANDEFER ORChard 4-2965 ABILENE, TEXAS B. E. PATTON 6444 XERXES SO. WAINUT 7-8092 MINNEAPOLIS, MINN. M. A. STEVLINGSON P. O. BOX 731 OMAHA, NEBRASKA

THE WORLD FAMOUS MITCHELL

WAPORIZERS

ARE DISTRIBUTED BY



Contact the distributor nearest you'dor full details.

JOHN E. MITCHELL CO.

SECO COMMERCE ST. DALLAS, TEXAS

Manufacturers of Fine Machinery for More Than Half a Century ARMANSAS Industrial Farm Home Gas Co P. O. Box 475

CALIFORNIA Meeder Equipment Complety 1745 North Eastern Avenue Los Angeles, California

Tecco Production Inc. 3920 W. Burbank Blvd. Burbank, California

COLURADO

Gas Equipment Co. of Denve

1485 Prentwood

Denver Colorado

FLORIDA Odell Class & Company 3807 Cheisea Avanue Oclando, Florida

GEORGIA

Gas Equipment Supply Co.

1253 Zonofite Road, N. E.

Atlanta 6, Georgia

HLINGIS
Fine Products Company
6240 Ogden Avenue
Darwyn, Minors

Paul Akers Computy 5560 Brookville Road Indianapolis, Indiana

Valley Industries, Inc. 2, 0, Box 111
NE Pleasant, Iowa

LP Gas Equipment Corbot 539 N. Cleveland Avenue 51, Paul. Minnesott United Potroleom Gas Co. 48th Excelsion Stat. Minnespells in Angelia

The Pastey little, & Dieter Co 200 E Fuel Street Kansas Dily, Missoutian

MEBRASKA
Plains Equip. & Engine ling 0
P. O. Sox 557
Applicant Medicania

NEW JERSEY Eastern states Europe, India

A. Emerson Thomas & Associates, Inc.

Westfield, New Jarrey

Anco Mifg. A. Supply Company 21st and S. Union Streets Tulsa, Oklahoma

TENNESSE Dealers Supply Co. of Methodia 3044 Athson Averue

TEXAS Gay Equipment Company, Inc. 2425 Caronae Oallas, Texas

Squibb-Taylor, Inc. 1213 S. Akard Dallas, Texas

Lang Wayne Equipment Co. First South & Second Want. Soft Lake City, Utah

WISCONSIA Knapp Mrg. & Sarrist Co. P. O. Box S Knapp, Wisconsia ARCENTINA Kenneth J. Länglej Corrientes 1115.

AUSTRALIA President Fig. 14d. Abbley St. West Tourscrap V. A Retholiyse, yestorib, Auto-CANADA Finco Universal

P. O. Bur 608—Bundlis, St. Ro-London, Online, Capada JAPARI Invalent & Campany, LS 11. Hommath d-Chemis Rigidali Min

MEXIGO R. Hopel & Company Fiber M. Mexico S. D. P.: Mexico

the industry-

Its products and/or services—

Cars and trucks—and the assorted services required to keep them going—are known to everyone. Not as frequently recognized, however, is the fact that two of the major service areas, exhaust system replacement and body and frame repair, involve—or can involve—the use of propane.

Its size-

Automotive repair is performed by four distinctly different types of establishments: the new car and truck dealer with a service department; the gas service station that does repair work; the general repair shop, which can fix anything automotive; and the specialty repair shop, which works exclusively on exhaust systems, or body repair, or something else. The Automotive Market Trend Survey recently completed by Motor Age magazine, a sister publication of BPN, estimates that there are currently 352,000 automotive service establishments, divided like this: 33,000 car dealers, 73,000 general repair shops, 36,000 specialty repair shops, and 210,000 service stations.

Its trends-

While the compact car trend is obvious to everyone, other industry trends are not. The number of car dealers, for example, has dropped 20.3 per cent in the last seven years. To fill this service facilities gap, the other three types of establishments have all grown in number in the last seven years: general repair shops, up 36 per cent; specialty repair shops, up 38 per cent; and service stations, up 15 per cent.

Its members, close up-

Because of the large number of establishments and their variations, a closer look is best taken on a who-does-what basis. Of all car dealers, 74 per cent, or 28,531, do major auto body repair; and of that total, 22,539 do it on a high-volume basis. Nineteen per cent of the general repair shops do major body work; and of that 13,337, 4,414 do it in volume. For specialty shops, the percentages are much higher: 45 per cent, or 14,993, do auto body work, 11,095 on a high-volume basis. Only 2 per cent (4,126) of the service stations do body work.

Less than half as many service outlets do frame repair, 28,446. However, 18,199 do it on a volume basis. These are mostly dealers, 11,821, and specialty repair shops, 4,688.

Mufflers are replaced by nearly two-thirds (64 per cent) of the nation's service establishments. Of this 222,588 total, 55 per cent, or 122,816, do it in volume. The percentages of different types of establishments that replace mufflers are: car dealers, 95 per cent; general repair shops, 83 per cent; specialty repair shops, 36 per cent; and service stations, 56 per cent.

While there are some pronounced regional differences, generally all figures vary only a few percentage points one way or the other. However, there is a community-size pattern. These services are somewhat more likely to be performed by dealers in medium-sized cities (10,000 to 100,000) than in small cities (under 10,000), while large cities are generally last in this respect. However, the highest actual number of establishments performing these types of services is in small cities in each case: 35,896 small town shops do auto body repair; 11,566 do frame work and 111,733 replace mufflers.

What are the potential uses for LPG?

The propane torch is the item. It will weld, cut, steel, soften steel, melt lead, loosen rusty exhaust pipes, and remove paint. The torch seems so versatile that one could easily say no automotive service establishment should do without one. And in many instances, that is very nearly the case. Exactly 95 per cent of the nation's auto dealers, for example, have torches. What's more, the use of cutting and welding equipment shows a healthy growth in virtually all categories.

The new Motor Age survey reveals that 43 per cent of all service establishments have welding and cutting equipment. That works out to 148,476 torch users, a 26 per cent increase over a Motor Age survey made three years earlier. The biggest increases were registered by general repair shops (51 per cent) and service stations (53 per cent). The number of torch users of each type are (percentage of total in parenthesis): car dealers, 36,627 users (95 per cent); general repair shops, 54,917 users (78 per cent); specialty repair shops, 25,987 users (78 per cent; and service stations, 30,945 users (15 per cent).

How do you sell the prospect?

You'll probably find it much, much easier to sell your local auto repairman the idea of using propane and the propane, itself, than to sell the propane-burning equipment. The reason is that he has one main source of supply, the auto jobber. He is accustomed to dealing with this man and depends on him. The Motor Age survey asked "Of all sources you use, which is most influential in running your business?" In three out of four cases, the jobber was most influential, far out-ranking other sources. The only exception was the auto dealer, who leans heavily on the factory. The jobber is a man so influential that you'd be much better off if you get him to cooperate with you rather than compete with you. When you sound out your local auto repair

How should the account be serviced?

If you're dealing with a dealer, the man you'll normally talk to is the service manager, who may or may not be a very business-like individual. If you're dealing with one of the other three types of service establishment, the chances are very good that—unless the place is large and has a manager—you'll be dealing with an in-

Such a tremendous potential is worth a type-bytype, region-by-region study. The percentages
of car dealers who have welding and cutting
equipment are: East, 90 per cent; South, 94;
North, 98; and West, 99. The percentages for
general repair shops are: East, 73 per cent;
South, 71; North, 81; and West, 96. For specialty
repair shops, they are: East 71 per cent; South,
73; North, 86; and West, 79. And for service
stations, they are: East, 12 per cent; South,
9; North, 20; and West, 18.

On a city-size basis, the service establishment in the small town (under 10,000) or medium-sized city (10,000 to 100,000) is more likely to have cutting and welding equipment than the one in the big city. The percentages for the various types (small town, first; medium city, second): car dealers, 94 per cent, 99 per cent; general repair shops, 83, 79; specialty repair shops, 89, 84; and service stations, 16, 9.

While torches are the number one auto repair use for LPG, lead-melting pots, paint dryers and drying ovens, and steam cleaning machines are also possibilities.

firms, find out who their jobbers are. Contact these important men, give them a demonstration, do anything you need to do to sell them on propane. If you sell them they'll do the real selling for you. They might even want you to work closely with them, providing demonstrations, etc.

Whether you're selling the jobber or the auto repair man directly, the key is propane's moneysaving ability. There are documented case histories of propane cutting fuel costs to as little as 10 per cent of what they had been with acetylene (see Scrap Industry Data Sheet). Add to this the additional savings in oxygen, and time (reduced cylinder changing, etc.), and you'll make a big impression.

dividual who sees himself as more of a specialist in his particular line than a businessman. He is apt to lean on your judgment quite heavily, specifying only that you provide the kind of service that will "save the most money and work the best." That's likely to be small or medium-sized cylinders.

Its products and/or services—

The dictionary definition and popular conception of the generic term, ceramics, do not exactly encompass the meaning applied by the ceramics industry, itself. Actually, such a wide variety of ceramic products is turned out that many elements of the industry prefer the term, "the ceramic industries." Broadly speaking, any non-metallic product that is fused through heat is ceramic. That includes glass and porcelain, china and pottery, tile and brick, cement and gypsum, refractories and sewer pipe, dielectrics and steatites, vitreous plumbing fixtures and porcelain enamel, etc.

Its size-

Including all elements of the industry, Ceramic Age magazine estimates it consists of approximately 4,000 plants, which annually turn out \$8 billion worth of merchandise. The American Ceramic Society places production one notch lower, at \$7 billion; adds quickly that "a very large proportion" of the associated manufacturing costs goes for "fuels: gas, oil, and some coal." Included in these totals are such elements of the industry as the flower pot makers (60 plants annually produce \$7 million worth of pots, according to the National Clay Pot Manufacturers Assn.) and sewer pipe producers (80 plants each year turn out \$40 million of pipe, according to the Clay Products Assn.).

Its trends-

Despite inroads by such imports as Japanese dinnerware and Belgian flat glass, the industry is growing—at a six per cent per year rate, according to Ceramic Age. And, the magazine says that the industry is changing: automation and new materials handling systems are lowering unit costs, a necessity in view of labor's increasing demands. Those plants which do not modernize will fail, the publication concludes.

Its members, close up-

Because the industry produces a very wide range of products and because many of these products can be profitably turned out by various types of operations, a picture of a composite or average industry member is virtually impossible to draw. Ceramic Age says that ceramic manufacturers come in all sizes, but "due to mergers, most will be big in the future." However, the figures cited by the magazine indicate that the industry already has a big business complexion: 65 per cent of all production comes from large companies averaging 8,000 employees, 20 per cent is produced by medium-sized plants averaging 250 employees, and 15 per cent of the total is turned out by small plants averaging 60 employees. On the opposite end of the spectrum is the lone art potter, producing his ware by hand on a potters wheel. In between these two opposites are certain specialized elements of the industry. Among the flower pot manufacturers, for example, a large company is one with 100 employees and annual production of \$1.3 million; a small company is one with five employees and \$50,000 production. Such operations should not be underestimated. For example, one glass-blower-part of a nine-man crew in a small plant-blows virtually every street-lighting globe used in the West!

What are the potential uses for LPG?

The basic use is the kiln, the most essential piece of equipment for nearly every ceramic manufacturer. Kilns come in almost as wide a variety as the products they turn out, from a 1-cu-ft art potter's kiln to a 200-ft-long, 10ft-high tile or sewer pipe manufacturer's kiln. They fall into two broad classifications, according to their use, continuous and periodic. The continuous kiln is tunnel-shaped, admits a continuous flow of "green" ware at one end and turns out fired ware at the opposite end. Periodic kilns are fired only as production requires, are usually either of the "box" or "shuttle" type. The box kiln is a simple enclosure with a door or lid. The shuttle kiln is a short tunnel kiln with doors at each end. Flat-car-like kiln cars stacked with green ware are shuttled in from either end and fired. Regardless of the type of kiln, the operation is basically the same. Green ware, containing two to four per cent water, enters at room temperature and is heated slowly to prevent formation of steam pockets which bubble the ware or cause small explosions. Depending upon the type of ware, it matures at anywhere from 1500 deg. to 2700 deg., is held at that temperature for several hours. Some ceramic products are fired just once, others may go into the kiln as many as five times. And with some, the firing cycle is measured in days rather than hours.

There are many other uses for LPG around ceramic plants. Green ware must dry before it can be put into the kiln. Room-air drying is too slow for volume producers so room heaters or moving belt driers gently speed up the process. Similar in appearance to the moving belt drier is the glass manufacturer's annealing lehr. And, of course, glass manufacturers must have melting tanks to liquefy the product for blowing. Other types of equipment used in ceramic plants include: enameling furnaces, frit smelters, cutting-off flame devices, steam boilers, and water heaters.

How do you sell the prospect?

Your approach depends on the prospect. Depending on the size of the company, the man to talk to will probably be the owner, the plant manager, or the purchasing agent. On the other hand, you might end up talking to a woman, for there are a lot of them in the art pottery business. A dedicated woman with one small kiln can use up more gas than several ambitious women with several ranges, so don't overlook the backyard studio. Actually the chances are much better that your territory will produce several basement or garage kilns than one full-fledged ceramic manufacturer.

Your prime prospect, of course is the beyondthe-mains company. Ceramic Age estimates that 35 per cent of the companies, both large and small, are in this category. If such plants are not using LPG, they probably are using oil.

Big city companies can—and should—use LPG as a stand-by fuel. They are sold on natural gas as the best economical fuel, but can be interested in LPG for two reasons: reduced fuel

costs and consistent production. Right in the heart of a "cheap" gas area, for example, a medium-sized tile maker saves \$8500 per year by buying natural gas at an interruptible rate and maintaining a stand-by propane-air plant. The saving is only half the story. The other half is that volume producers keep their kilns fired 24-hours a day an an outage caused by a mains break or any other reason means halted production, damaged—if not destroyed—kiln loads, lost employee time, upset production schedules, etc.

Both the Clay Flower Pot Manufacturers Assn. and Ceramic Age offer good selling tips. Both rate fuel costs as the most important single advantage LPG could offer. Both also agree that good service by the fuel supplier is the second most important advantage. After that, the association lists controllability (third) and effect on quality of finished product (fourth). The magazine follows good service with time and manpower savings (third), portability, (fourth), clean combustion (fifth), controllability (sixth), and effect on quality of finished product.

How should the account be serviced?

The details again depend on the individual operation. A small pottery might want to lease a tank or cylinders. A medium-sized manufacturer would probably want to buy an 8000-gal. to 20,000-gal. bulk tank.

Because the equipment is highly specialized, you undoubtedly will not be expected to supply any of it—with the possible exception of replacement or conversion burners, boilers, and water heaters.



ON THE EVERYWHERE WITH SERVICE AND FACILITIES PLUS

Anchor's huge fleet of tank cars is constantly plying from plant-to-storage-to-you. This and the flexibility of operation which is uniquely "Anchor," makes it possible to take care of your emergency needs as well as deliveries as scheduled. So when you're thinking of LPG contracts, count on Anchor . . . Tulsa, LU 2-7261.





ANCHOR PETROLEUM DIVISION

Mobil Oil Company TULSA, OKLAHOMA ...we could prove to your satisfaction that you could make more money as an independent Skelgas LP-Gas dealer,

... would you be interested?

FILL OUT THIS COUPON AND MAIL TODAY Mr. Don Barton Skelgas Marketing, Skelly Oil Company P. O. Box 436; Kansas City 41, Missouri Dear Mr. Barton: Without obligation, and in complete confidence, I would be interested in discussing the profit possibilities of an independent Skelgas Franchise with one of your managers. I am particularly interested in: How to gain operating cash from accounts receivable. How to double my income without additional capital investment. How to turn my bulk plant investment into an extra 150,000 gallons of gas business per year. How to make a \$2,000 investment produce like \$10,000. NAME COMPANY

INDUSTRIAL MARKETS

Its products and/or services—

"It's difficult to mention a manufactured product that is not the result of metalworking," aavs Iron Age, the widely quoted and respected national metalworking weekly (a sister publication of BPN). That statement—made in IA's impressive, expensive (\$25) marketing handbook, Basic Metalworking Data—is no exaggeration. Metalworking produces everything from subminiature parts to the largest ship afloat. And if a thing is not made of metal, it is virtually certain to have been produced by some device that's a product of the metalworking industry.

Its size-

"It's big. It's complex. The government, for instance, breaks metalworking down into 185 separate industries." That summation in Basic Metalworking Data is backed up by government figures. In the 1958 U.S. Census of Manufactures (the latest available), the metalworking industry produced \$69.5 billion of goods, or 48.7 per cent of the entire nation's production. That tremendous total was made up of these major industry totals: metal furniture, \$1.3 billion; primary metals, \$11.3 billion; fabricated metals, \$9.2 billion; machinery except electrical, \$14.2 billion; electrical machinery, \$9.4 billion; transportation equipment, \$16.4 billion; instruments, \$2.9 billion; and miscellaneous metal manufacturing, \$4.8 billion. Just as impressive in terms of employees, metalworking in 1958 employed 5.39 million workers out of the total manufacturing work force of 11.72 million. That's 46.1 per cent.

Metalworking is also very impressive in terms of the money it spends for new machinery and equipment. Expenditures in that category totaled \$4 billion. That's 44.8 per cent of the total spent by all manufacturing. Breaking this figure down for the major industry groups, the totals are: metal furniture, \$40 million: primary metals, \$1,346 million: fabricated metals, \$468 million: machinery except electrical, \$772 million; electrical machinery, \$455 million; transportation equipment, \$634 million; instruments, \$122 million; and miscellaneous metal manufacturing, \$168 million.

Its trends—

"It's constantly changing." Again, the quote is from Basic Metalworking Data, To back up that quote, the book cites three sets of statistics. During the 1954-58 period, the dollar value of the industry's production rose 19.2 per cent and its expenditures for new machinery and equipment zoomed up 51.4 per cent. Simultaneously, the number of workers decreased 7.4 per cent.

When asked how the industry world change in the next five or ten years, Western Metalworking magazine replied: "More automation, more diverse products, fewer small firms, more exotic materials to be worked or produced, more sophistication, fewer employees, larger output."

Its members, close up-

With approximately 90,000 plants in 185 different metalworking industries, any sort of close-up is a virtual impossibility. Despite the monumental aspects of Iron Age's county-by-county study, for example, the magazine covers only a few aspects and ignores the countless thousands of metalworking shops with less than 20 employees.

What are the potential uses for LPG?

Metalworking's potential uses for LPG can be divided into three categories: cutting and welding metal heating, and solution and air heating in metal finishing.

Basic Metalworking Data analyzes the industry on a 36-department basis. BPN selected those departments that could use LPG and ran a few totals to get some clue to the possible potential. But the Iron Age study includes only departments in companies with more than 20 employees. Thus, the small metalworking companies, many of which are beyond the mains, are not included.

Torches for cutting and welding can be used in plate or structural shops and arc or gas welding departments. In the metal working industry, there are 3,941 plate or structural shops and 11,932 arc or gas welding departments. Thus, the industry has 15,873 departments that could use LPG torches. Two things should be noted: there may be more than one department of the same type in the same company, and some companies may consist only of one "department."

Eight types of departments, a total of 17,713 actual departments, involve metal heating in industrial furnaces, ovens, etc. Metalworking has: 1,558 gray iron foundries, 213 malleable iron foundries, 460 steel foundries, 1,480 non-ferrous foundries, 5,655 heat treating departments, 1,271 forge shops, 1,229 die casting departments, and 5,847 riveting departments. There are at least 20 distinct uses for gas in founderies, including:

How do you sell the prospect?

More than in any other industry, you have to "play this one by ear." Your first metalworking prospect might be a one-man operation or a huge company. It might turn out hairpins or missile components. The man you talk to might be the owner or just one small cog in a big machine. He might be buying LPG for lift trucks or some other use—or he might not have even heard of it.

Preparing yourself under such circumstances is not the easiest thing in the world. Since your number one competitor will probably be oil, you can be prepared on that score, Hirt Combustion

How should the account be serviced?

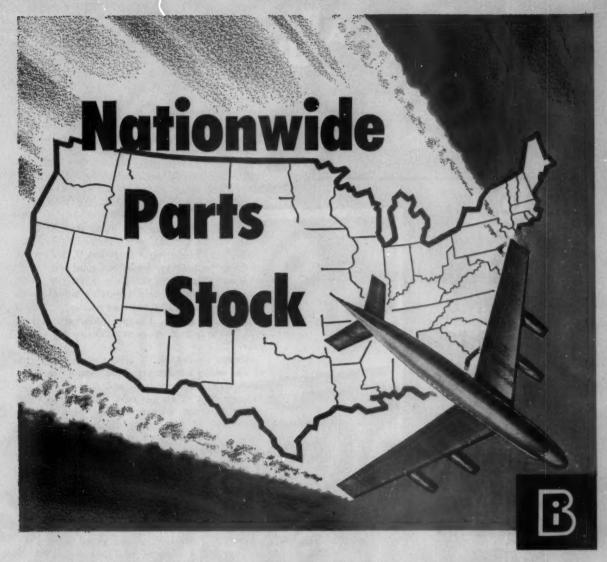
Again, that all depends on the individual firm. The owner of the small metalworking shop will probably want cylinder service, but might lease core ovens, mold drying, ladle drying cupola lighting, preheating charge, drying coal, malleable annealing, unit heaters, and water heaters. Gas is used extensively for heat treating furnaces, both batch (periodic) and continuous. Its big advantage for heat treating is that gas can come in contact with the metal, which absorbs some of its carbon. Classified according to the way they transfer heat, there are nine different types of heat treating furnaces. Forging operations often use high speed gas heating units. Die casting departments have gas metal melting pots while riveting departments have gas rivet heaters.

Four types of departments, totaling 19,994 actual departments, involve heating liquids or air while applying a finish to the metal product. The four-and the number of each type-are: metal washing or degreasing, 6,737; pickling, 2,289; painting and lacquering, 10,104; and galvanizing or tinning, 864. Metal washing, degreasing, and pickling usually employ solution heating, frequently via immersion tube heating or submerged combustion. Painting and lacquering require drying ovens and sometimes fume incinerators in exhaust stacks or ducts. Gas galvanizing kettles are highly favored because they last twice as long as coke-fired kettles and because they greatly reduce dross (an unwanted alloy which is sold). How many metalworking companies are beyond the mains? Both Western Metalworking and Metal Products Manufacturing magazine estimate the figure at 10 per cent.

Engineers, a burner manufacturer, lists three reasons why LPG should beat out oil in this market: it is easier to combust so the burner installation is cheaper; it has a lower Btu-per-dollar cost; and it is cleaner.

What should you stress? Western Metalworking say3 clean combustion, time and manpower savings fuel costs, portability, controllability, effect on quality of finished product, and good service, in that order. Metal Products Manufacturing differs, rating portability as most important, followed by effect on quality of finished product and fuel costs.

a tank to advantage. The purchasing agent in a large metalworking concern would probably get approval to install a first class LPG tank farm.



Nationwide...personalized service at your

BASO' REPLACEMENT DEPOTS

Baso Replacement Depots are your key parts centers for quick replacement service. All your requests and problems receive personal attention to assure fast delivery and utmost customer satisfaction.

Each Depot stocks factory-made Baso replacement parts and controls in any size and capacity—Valves, Switches, Pilot Burners, Thermocouple Leads, or Power Unit assemblies. All Depots stock 120-2 Test Kit and 341 Gas Valve Grease.

There's a Baso Replacement Depot close to you. Write Baso Div, for the name and address of the Depot in your area.

PENN CONTROLS, INC.

"Pioneers in thermoelectric gas controls"

SALES BY PRINCIPAL "RETAIL" USES

YEAR	DOMESTIC, COMMERCIAL	INTERNAL	INDUSTRIAL
1956	3,001,021	773,471 805,056	438,916 441,474
1957 1958 1959 ³	3,067,070 3,293,677 3,934,792	852,387 889,698	492,862 439,200
19604 Percent change	4,224,537	897,915	438,659
from 1959	7.4	0.9	-0.1

LPG-ethane
sales rose
7 per cent in
1960, says
BuMines

RELATIVE RANK OF PRINCIPAL

	14-17-11		
YEAR	DOMESTIC. COMMERCIAL	INTERNAL COMBUSTION	INDUSTRIAL
1956	45.2	11.7	6.6
1957	44.2 44.1	11.6 11.4	6.4
1959	44.1 44.3	10.0	4.9

¹Not included are figures for the following: refinery fuel, gas manufacturing, chemical, synthetic rubber, use in secondary recovery of petroleum, plus others. Data include L.R. gases.

DOMESTIC SALES OF LPG AND ETHANE (EXCLUDING THEIR USE IN GASOLINE) INCREASED 7 PER CENT IN 1960, according to the annual Bureau of Mines report, issued at the end of August.

This represented a substantial leveling off from the 20 per cent gain shown in 1959, but was about even with the gains registered the previous three years.

Total gallonage reached 9,544,699,000. In addition, said BuMines, 1,899,660,000 gals. was shipped for use in gasoline, some 18 per cent more than in 1959, while exports were 125,496,000, more than 33 per cent above 1959. In the latter case, however, the total was considerably short of 1957's high of 190,603,000.

A new high was registered in exports to Mexico, nearly 112 million gals. being shipped south of the border. Canada, once a prime importer, accepted slightly more gas from the U. S. in 1960 than in the previous year, but total shipments were still less than 6 million gals. Of the South American countries, only Argentina imported gas in any volume at all—and that was only 3.8 million gals. Together, Europe, Asia, and Africa took less than an average small dealer during the year.

Always in the No. 1 spot among categories of use, sales for domestic and commercial purposes gained 7.4 per cent, and now account for 44.3 per cent of all gas sold. Sales for internal combustion use gained 0.9 per cent, but in percentage of total sales dropped to 9.4. Industrial usage was off 0.1 per cent, and accounted for but 4.6 per cent of total sales as against 4.9 for the previous year. Gas manufacture continued to toboggan, dropping 14.1 per pent; this category now uses only 1.6 per cent of all product sold. Secondary recovery plummeted 77 per cent.

Among individual hydrocarbons, ethane sales rose to 10.1 per cent of the grand total while propane hit a high of 60.2 per cent. Butane was off from 1959's 14.6 to 11.5, isobutane rose slightly but still accounted for only 0.1 per cent, butane-propane mixes were down 1.3 per cent to 11.5, and all other mixes were up slightly, to 6.6.

The pattern of domestic use in the U.S. showed good gains in the East, Midwest, and South, while the Rockies and the Pacific Coast tailed off. Mississippi and Iowa led with 32 per cent increases. Alaska and West Virginia topped 20 per cent.

In industrial usage, only the East and South scored gains. Even in those regions, the picture was very spotty.

California, Colorado, South Carolina, Virginia, Nebraska, and Washington showed big jumps in gas manufacturing, but these gains were overshadowed by losses in the states where the concentration has been heaviest. Overall, the East dropped 17.5 per cent, the Midwest 38.5 per cent, the South 56 per cent.

Breakdowns of the principal uses, by states, appear in the table on page 67.

the quality tells... the quality sells

JANITROL

inter air conditioniss

featuring

famous JANITROL

Multi-Thermex

Heating Heart

THUE



理点

Janitrol presents ... furnaces of the future ... ready now to help you sell and grow!

ANITROL all new Series FVS gas-fired WINTER AIR-CONDITIONERS

FVS Winter Air Conditioner with front panels removed to show compact design and complete accessibility.

Loaded with exclusive features no other line in the industry can match...yet priced competitively for volume sales!

The brand of winter air conditioning you choose to sell is vitally important to your income, your future security, your business growth. So it pays to choose wisely, and align yourself with the brand that gives you the most to tell, the most to sell. In winter conditioners, that means Janitrol. A look at the brilliant all-new FVS Series Conditioners for all gases tells you why in a hurry. Never before in heating history has any furnace offered so much to help your business grow and profit!

Convertible for full-performance cooling at minimum cost!

In this brilliant new Janitrol FVS Conditioner Series, the standard blower size is adequate for cooling in most installations! A damper changeover kit is available to convert rear air deflector from fixed to movable type, and allow cooling air to bypass the heat exchanger.

There's a quality-built JANITROL gas-fired winter air conditioner for every need!

Janitrol Horizontal Conditioners





Janitrol

Counterflow Conditioners

Call WESTERN UNION Now!

Address Your Collect Wire to:

HARRY C. GURNEY, General Sales Manager Janitrol Heating and Air Conditioning A Division of Midland-Ross Corporation Columbus 16, Ohio (In Canada: Wire Moffat's Ltd. Toronto 15)

JUST SAY-"Rush me full details on Janitrol Select Dealer Program"



You'll do better by far as a ..

RITROL SELECT DEALER

WIRE COLLECT NOW

for proof . . . and a preview of the

How LPG was used (at "retail") in the U.S. in 1960

P.A.D. districts and States strict 1: Connecticut Delaware Florida Georgia Maine Maryland & D.C. Massachusetts Hew Hampshire New York North Carolina Pennsylvania Flode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Iowa Kansas Kentucky Michigan Minnesota Vinsouth North Dakota Ohlo Oklahoma South Dakota Wiscousin	70tal LP-ga 959 32,822 10,031 155,499 316,484 29,092 37,845 18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965 80,162	30,854 8,694 170,871 112,596 16,912 30,498 37,135 20,354 36,435 105,263 79,810 55,765 7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887 86,473	Percent change -6.0 -13.3 9.9 12.6 2.6 4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5 7.8	1,013 1,013 1,86 12,733 11,778 133 11,778 133 1,005 842 15 2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197 4,627	350 414 15,005 12,014 132 1,598 718 20 1,115 3,309 980 3,586 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848 5,340 6,608	-65.5 122.6 17.8 2.0 -0.8 59.0 -14.7 33.3 -49.4 6.9 -48.3 35.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 25.9 26.9	70tal LF-87 1959 8,679 1,908 8,668 7,376 792 3,220 3,117 718 17,162 10,823 8,819 19,497 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 2,679 8,865 23,094 10,941 1,544 1,669	8,436 2,456 7,475 8,262 891 3,980 3,976 9,979 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343 2,712	-2.8 28.7 -15.7 12.0 12.5 23.6 27.6 31.9 4.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
P.A.D. districts and States strict 1: Connecticut Declaware Florida Georgia Maine Maryland & D.C. Massachusetts Hew Hampshire New Jersey New York North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Missouri Nebraska North Dakota South Dakota South Dakota South Dakota Tennessee Wiscousin	32,822 10,031 155,499 99,953 16,464 29,092 37,845 18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,992 209,597 80,915 33,965	1960 30,854 8,694 170,871 112,596 16,912 30,498 37,135 20,354 36,435 105,263 79,810 55,565 7,362 45,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	change -6.0 -13.3 9.9 12.6 2.6 4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	1,013 186 12,733 11,778 133 1,005 842 1,5 2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 36,949 2,408 1,538 6,651 10,789 10,789 16,310 8,197	350 414 15,005 12,014 132 1,598 718 20 1,115 3,309 980 3,586 256 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	change -65.5 122.6 17.8 2.0 -0.8 59.0 -14.7 33.3 -49.4 6.9 -48.3 35.4 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.6.8 152.3 -25.3 -25.3 -25.3 -25.9	8,679 1,908 8,868 7,376 792 3,220 3,117 718 17,162 10,823 8,819 19,497 8,924 1,056 3,588 3,588 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	8,436 2,456 7,475 8,262 891 3,980 3,976 9,879 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	-2.8 28.7 -15.7 12.0 12.5 23.6 27.6 31.9 4.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Connecticut Delaware Florida Georgia Marine Maryland & D.C. Massachusetti Hew Hampshire North Carolina Pennsylvania South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Minnesota North Dakota South Dakota South Dakota South Dakota Wiscousin	10,031 155,499 99,953 16,484 29,092 37,845 18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	8,694 170,871 112,596 16,912 30,498 37,135 20,354 36,435 105,263 79,810 55,565 7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	-13.3 9.9 12.6 2.6 4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 1.9 1.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	186 12,733 11,778 133 1,005 842 15 2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	414 15,005 12,014 132 1,598 718 20 1,115 3,309 980 3,586 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	122.6 17.8 2.0 -0.8 59.0 -14.7 33.3 -49.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 1.0 1.56.8 152.3 -25.3 -25.3	1,908 8,868 7,376 792 3,220 3,117 718 17,162 10,823 8,819 19,497 867 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,665 23,094 10,941 1,544	2, 456 7, 475 8, 262 891 3, 980 3, 976 9, 897 9, 999 9, 859 24, 433 881 6, 544 1, 362 3, 803 1, 039 112, 341 40, 507 43, 502 4, 939 7, 423 3, 109 11, 852 24, 663 9, 369 1, 343	28.7 -15.7 -12.0 12.5 23.6 27.6 31.9 -7.7 11.8 25.3 1.6 -26.0 -39.7 4.9 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Connecticut Delaware Florida Georgia Marine Maryland & D.C. Massachusetti Hew Hampshire North Carolina Pennsylvania South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Minnesota North Dakota South Dakota South Dakota South Dakota Wiscousin	10,031 155,499 99,953 16,484 29,092 37,845 18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	8,694 170,871 112,596 16,912 30,498 37,135 20,354 36,435 105,263 79,810 55,565 7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	-13.3 9.9 12.6 2.6 4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 1.9 1.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	186 12,733 11,778 133 1,005 842 15 2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	414 15,005 12,014 132 1,598 718 20 1,115 3,309 980 3,586 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	122.6 17.8 2.0 -0.8 59.0 -14.7 33.3 -49.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 1.0 1.56.8 152.3 -25.3 -25.3	1,908 8,868 7,376 792 3,220 3,117 718 17,162 10,823 8,819 19,497 867 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,665 23,094 10,941 1,544	2, 456 7, 475 8, 262 891 3, 980 3, 976 9, 897 9, 999 9, 859 24, 433 881 6, 544 1, 362 3, 803 1, 039 112, 341 40, 507 43, 502 4, 939 7, 423 3, 109 11, 852 24, 663 9, 369 1, 343	28.7 -15.7 -12.0 12.5 23.6 27.6 31.9 -7.7 11.8 25.3 1.6 -26.0 -39.7 4.9 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Delaware Florida Georgia Maine Maryland & D.C. Massachusetts New Hampshire New Jersey New York North Carolina Pennsylvania South Carolina Vermont Virginia Total istrict 2: Illinois Indiana Iowa Kansas Kantacky Michigan Minnesota Missouri Nebraska North Dalota Ohlo Oklahoma South Dalota Wiscousin	155, 499 99, 953 16, 484 29, 092 37, 845 18, 243 35, 642 101, 857 69, 735 54, 342 7, 169 99, 134 765, 560 238, 201 158, 674 123, 185 167, 157 58, 238 88, 530 142, 952 209, 597 80, 915 33, 965	170,871 112,596 16,912 30,498 37,135 20,354 36,435 105,263 79,810 55,565 7,362 45,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	9.9 12.6 4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	12,733 11,778 11,778 1,33 1,005 842 15 2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	15,005 12,014 132 1,598 718 20 1,115 3,309 980 3,586 256 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	17.8 2.0 -0.8 59.0 -14.7 33.3 -49.4 6.9 -48.3 35.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -25.3	8,668 7,376 792 3,220 3,117 718 17,162 10,823 8,819 19,497 8,67 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	7,475 8,262 891 3,980 3,976 947 18,007 9,859 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	12.0 12.5 23.6 27.6 31.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 45.1
Florida Georgia Maine Maryland & D.C. Massachusetts Hew Hampshire New Jersey New York North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia Total istrict 2: Illinois Indiana Iowa Kansas Kentucky Michigan Minnesota Wissouri Nebraska North Dakota South Dakota South Dakota Temnessee Wiscousin	99,953 16,484 29,092 37,845 18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	112,596 16,912 30,498 37,135 20,354 36,435 105,263 79,810 55,565 7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	12.6 2.6 4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 1.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	11,778 133 1,005 842 15 2,201 3,006 1,894 2,649 223 2,088 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	12,014 132 1,598 718 20 1,115 3,309 980 3,586 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	2.0 -0.8 59.0 -14.7 33.3 -46.9 -48.3 35.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -25.3	7,376 792 3,220 3,117 718 17,162 10,823 8,819 19,497 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	8,262 891 3,980 3,976 9,47 18,007 9,990 9,859 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	12.5 23.6 27.6 31.9 4.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.8 -14.8 -13.0 45.1
Maine Maryland & D.C. Masachusetts New Hampshire New Jersey New Jersey North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Iowa Kansas Kentucky Michigan Minnesota Missouri Nebraska North Dakota South Dakota Tennessee Wiscousin	16, 484 29, 092 37, 845 18, 243 35, 642 101, 857 69, 735 54, 342 7, 169 42, 903 11, 939 32, 870 9, 134 765, 560 238, 201 158, 674 123, 185 167, 157 58, 238 88, 530 142, 952 209, 597 80, 915 33, 965	16, 912 30, 498 37, 135 20, 354 36, 435 105, 263 79, 810 55, 565 7, 362 45, 745 12, 771 36, 279 11, 173 818, 317 256, 538 167, 476 163, 644 170, 313 68, 980 95, 835 153, 576 231, 574 88, 459 38, 887	2.6 4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	1,33 1,005 842 1,5 2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,738 6,651 10,789 16,310 8,197	132 1,598 718 20 1,115 3,309 980 3,586 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	-0.8 59.0 -14.7 33.3 -49.4 6.9 -48.3 35.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 25.6	792 3,220 3,117 718 17,162 10,823 8,819 19,497 8,624 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	891 3,980 3,976 9,47 18,007 9,959 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	23.6 27.6 31.9 4.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Maryland & D.C Massachusetts Hew Hampshire New Jersey New York North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Indiana Iowa Kansas Kentucky Miscouri Nebraska North Dakota Chio Oklahoma South Dakota Tennessee Wiscousin	29,092 37,845 18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	30, 498 37, 135 20, 354 36, 435 105, 263 79, 810 55, 565 7, 362 45, 745 12, 771 36, 279 11, 173 818, 317 256, 538 167, 476 163, 644 170, 313 68, 980 95, 835 153, 576 231, 574 88, 459 38, 887	4.8 -1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	1,005 842 15 2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 36,949 2,408 1,538 6,651 10,789 16,310 8,197	1,598 718 20 1,115 3,309 980 3,586 256 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	-14.7 33.3 -49.4 6.9 -48.3 35.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 1.56.8 152.3 -25.3 -26.9 25.6	3,220 3,117 718 17,162 10,823 8,819 19,497 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 2,679 8,865 23,094 10,941	3,976 18,007 9,990 9,859 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	27.6 31.9 4.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0
Massachusetts New Hampshire New Jersey New York North Carolina Pennsylvania South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Ohio Oklahoma South Dakota Tennessee Wiscousin	37,845 18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	37,135 20,354 36,435 105,263 79,810 55,565 7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,574 231,574 88,459 38,887	-1.9 11.6 2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	842 15 2,201 3,096 1,894 2,689 223 2,088 30 1,360 272 41,518 45,153 6,711 33,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	718 20 1,115 3,309 980 3,586 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	33.3 -49.4 -6.9 -48.3 35.4 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -25.3 -25.5	3,117 718 17,162 10,823 8,819 19,497 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	3,976 18,007 9,990 9,859 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	31.9 4.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.8 -13.0 45.1
New Jersey New Jersey New York North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Iowa Kansas Kentucky Michigan Minnesota Missouri Nebraska North Dakota Ohio Oklahoma South Dakota Wiscousin	18,243 35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	20, 354 36, 435 105, 263 79, 810 55, 565 7, 362 45, 745 12, 771 36, 279 11,173 818, 317 256, 538 167, 476 163, 644 170, 313 68, 980 95, 835 153, 576 231, 574 88, 459 38, 887	2.2 3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	2,201 3,096 1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	1,115 3,309 980 3,586 256 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	-49.4 69.9 -48.3 35.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 25.5	7.8 17,162 10,823 8,819 19,497 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	18,007 9,990 9,859 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	4.9 -7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
New Jorsey New York North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Minnesota Minnesota Okio Oklahoma South Dakota Temnessee Wiscousin	35,642 101,857 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	105,263 79,810 55,565 7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	3.3 14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	3,096 1,894 2,649 223 2,088 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	3,309 980 3,586 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	6.9 -\80.3 35.\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	10, 823 8, 819 19, 497 8, 924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 2,679 8,865 23,094 10,941 1,544	9,990 9,859 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	-7.7 11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0
New York North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Iowa Kansas Kentucky Michigan Minnesota Minnesota North Dakota South Dakota South Dakota Tennessee Wiscousin	101,857 69,735 69,735 54,342 7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 8,530 142,952 209,597 80,915 33,965	79,810 55,565 7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	14.4 2.3 2.7 6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	1,894 2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	980 3,586 2,56 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	-48.3 35.4 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 25.6	8,819 19,497 8,667 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	9,859 24,433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	11.8 25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
North Carolina Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kansas Kansas Kentucky Michigan Minesota Miscouri Nebraska North Dakota Ohio Oklahoma South Dakota Wiscousin Wiscousin	54, 342 7, 169 42, 903 11, 939 32, 870 9, 134 765, 560 238, 201 158, 674 123, 185 167, 157 58, 238 88, 530 142, 952 209, 597 80, 915 33, 965	55, 565 7, 362 45, 745 12, 771 36, 279 11,173 818, 317 256, 538 167, 476 163, 644 170, 313 68, 980 95, 835 153, 576 231, 574 88, 459 38, 887	2-3 2-7 6-6 7-0 10-4 22-3 6-9 7-7 5-5 32-8 1-9 18-4 8-3 7-4 10-5 9-3 14-5	2,649 223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	3,586 256 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	35.¼ 14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 25.5	19, 497 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	24, 433 881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	25.3 1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Pennsylvania	7,169 42,903 11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	7,362 45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	2.7 6.6 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	223 2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	256 2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	14.8 17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 15.9 15.6 152.3 -25.3 -26.9 25.6	867 8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	881 6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	1.6 -26.7 29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Rhode Island	42,903 11,939 32,870 9,134 765,560 238,201 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	45,745 12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	6.6 7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	2,088 30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	2,445 27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	17.1 -10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -25.9	8,924 1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	6,544 1,362 3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
South Carolina Vermont Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Minnesota North Dakota South Dakota Tennessee Wiscousin	11,939 32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,239 88,530 142,952 209,597 80,915 33,965	12,771 36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	7.0 10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	30 1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	27 1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	-10.0 -3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 25.6	1,056 3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	1,362 3,603 1,039 112,3k1 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	29.0 6.0 -39.7 4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Vermont Virginia West Virginia Total istrict 2: Illinois Indiana Iowa Kansas Kentucky Michigan Minnesota Missouri Nebraska North Dakota Ohio Oklahoma South Dakota Wiscousin	32,870 9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	36,279 11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	10.4 22.3 6.9 7.7 5.5 32.8 1.9 18.4 10.5 9.3 14.5	1,360 272 41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	1,316 321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	-3.2 18.0 5.0 28.3 28.9 15.9 1.0 156.8 152.3 -26.9 25.6	3,588 1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	3,803 1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
West Virginia Total istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Minnesota Missouri Nebraska North Dakota South Dakota Tennessee Wiscousin	9,134 765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	11,173 818,317 256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	321 43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	5.0 28.3 28.9 15.9 1.0 156.8 152.3 -26.9 25.6	1,722 107,136 37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	1,039 112,341 40,507 43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	4.9 8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Total istrict 2: Illinois Indiana Iowa Kansas Kentucky Michigan Minnesota Miscouri Nebraska North Dakota Oklahoma South Dakota Wiscousin	765,560 238,201 158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	41,518 45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	43,606 57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 15.6	37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	40,507 h3,502 h,939 7,423 3,109 11,852 24,663 9,369 1,343	8.8 -3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
istrict 2: Illinois Indiana Towa Kansas Kentucky Michigan Minnesota Missouri Nebraska North Dakota Ohio Oklahoma South Dakota Tennessee Wiscousin	238,201 156,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	256,538 167,476 163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	7.7 5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	45,153 6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	57,938 8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	28.3 28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 15.6	37,241 44,974 6,669 6,359 2,679 8,865 23,094 10,941 1,544	40,507 h3,502 h,939 7,423 3,109 11,852 24,663 9,369 1,343	-3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Illinois Indiana Indiana Iowa Kansas Kentucky Michigan Minnesota Vissouri Nebraska North Dakota Oklahoma South Dakota Tennessee Wiscousin	158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	167, 476 163,644 170, 313 68,980 95,835 153,576 231,574 88,459 38,887	5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 15.6	44,974 6,669 6,359 2,679 8,865 23,094 10,941	43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	-3.3 -26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Indiana Towa Towa Kansas Kentucky Michigan Minnesota Minnesota Missouri Nebraska North Dakota South Dakota Tennessee Wiscousin	158,674 123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	167, 476 163,644 170, 313 68,980 95,835 153,576 231,574 88,459 38,887	5.5 32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	6,711 3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	8,649 4,154 39,354 6,183 3,881 4,971 7,891 18,848	28.9 15.9 1.0 156.8 152.3 -25.3 -26.9 15.6	44,974 6,669 6,359 2,679 8,865 23,094 10,941	43,502 4,939 7,423 3,109 11,852 24,663 9,369 1,343	-26.0 16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Kansas Kantucky Michigan Minnesota Missouri Nebraska North Dakota Oklahoma South Dakota Wiscousin	123,185 167,157 58,238 88,530 142,952 209,597 80,915 33,965	163,644 170,313 68,980 95,835 153,576 231,574 88,459 38,887	32.8 1.9 18.4 8.3 7.4 10.5 9.3 14.5	3,584 38,949 2,408 1,538 6,651 10,789 16,310 8,197	4,154 39,354 6,183 3,881 4,971 7,891 18,848	1.0 156.8 152.3 -25.3 -26.9 15.6	6,669 6,359 2,679 8,865 23,094 10,941	4,939 7,423 3,109 11,852 24,663 9,369 1,343	16.7 16.1 33.7 6.8 -14.4 -13.0 45.1
Kansas Kentucky Michigan Minnesota Missouri Nebraska Chio Cklahona South Dakota Tennessee Wiscousin	167,157 58,238 88,530 142,952 209,597 80,915 33,965	170,313 68,980 95,835 153,576 231,574 88,459 38,887	1.9 18.4 8.3 7.4 10.5 9.3 14.5	38,949 2,408 1,538 6,651 10,789 16,310 8,197	6,183 3,881 4,971 7,891 18,848	156.8 152.3 -25.3 -26.9 15.6	2,679 8,865 23,094 10,941 1,544	3,109 11,852 24,663 9,369 1,343	16.1 33.7 6.8 -14.4 -13.0 45.1
Kentucky Mi chigan Mi chigan Minnesota Wissouri Nebraska North Dakota Oklahoma South Dakota Tennessee Wiscousin	58,238 88,530 142,952 209,597 80,915 33,965	68,980 95,835 153,576 231,574 88,459 38,887	18.4 8.3 7.4 10.5 9.3 14.5	1,538 6,651 10,789 16,310 8,197	3,881 4,971 7,891 18,848	152.3 -25.3 -26.9 15.6	8,865 23,094 10,941 1,544	11,852 24,663 9,369 1,343	33.7 6.8 -14.4 -13.0 45.1
Michigan Minnesota Missouri Nebraska North Dakota Oklahoma South Dakota Tennessee Wiscousin	88,530 142,952 209,597 80,915 33,965	95,835 153,576 231,574 88,459 38,887	7.4 10.5 9.3 14.5	6,651 10,789 16,310 8,197	18,848	-25.3 -26.9 25.6	23,094 10,941 1,544	24,663 9,369 1,343	6.8 -14.4 -13.0 45.1
Minnesota Vissouri Nebraska North Dakota Ohio Oklahoma South Dakota Tennessee Wiscousin	142,952 209,597 80,915 33,965	153,576 231,574 88,459 38,887	9.3 14.5	10,789 16,310 8,197	18,848	-26.9 15.6	10,941	9,369	-14.4 -13.0 45.1
Missouri Nebraska North Dakota Ohio Oklahoma South Dakota Tennessee Wiscousin	209,597 80,915 33,965	231,574 88,459 38,887	9.3	16,310	18,848	15.6	1,544	1,343	-13.0 45.1
Nebraska North Dakota Ohio Oklahoma South Dakota Tennessee Wiscousin	80,915	38,887	14.5	8,197			1 860		45.1
North Dakota	33,965			4,627	6 608				
Ohio	80,182	P6 h72		4,06		42.8	10,551	11,231	6.5
South Dakota Tennessee Wisconsin				60,320	53,143	-11.9	14,751	7,810	-47.1
Tennessee	205,351	194,592	-5.2 6.1	4,835	3,954	-18.2	1,036	602	-41.9
Wisconsin	49,680	52,732	7.1	4,421	4,004	-9.4	3,147	6,615	110.2
	39,770	132,172	17.6	5,457	4,239	-22.3	42,232	35,888	-15.0
Total	112,351			219,950	229,157	4.2	215,952	211,565	-2.0
CULTURY MEDICAL PROPERTY.	1,788,748	1,943,833	8.7	2171770					(0
District 3:	97 760	103,828	18.3	6,332	5,606	-11.5	2,877	3,055	6.2
Alabama	87,760	139,901	16.6	51,783	56,629	9.4	2,337	5,238	8.7
Iouisiana	70,190	77,413	10.3	31,811	36,121	13.5	14,646	15,925	-41.8
Mississippi	.91,270	121,044	32.6	31,312	40,363	28.9	3,991	4,210	-32.7
New Mexico	66,034	71,194	7.8	20,817	22,821	-4.1	6,255	34,124	5.5
Texas	481,180	498,197	3.5	387,024	371,217		THE RESERVE AND PERSONS NAMED IN	64,877	3.9
Total	916,458	1,011,577	10.4	529,079	532,757	0.7	62,447	04,011	CARS: 51686
District 4:	Mitches Colonia	TO SECOND	-	31. 11.3	17,103	16.0	3,534	1,373	-61.2
Colorado	112,462	103,596	-7.9	14,743	1,281	3.6	2,165	2,321	7.2
Idaho	18,312	15,503	-15.3	6.668	5,245	-21.4	443	669	51.0
Utah	26,966	25,015	0.2	3,042	6,400	110.4	233	2,756	-2.0
Wyoming	12,276	27,731	6.4	16,483	12,824	-22.2	2,812	THE RESERVE OF THE PERSON NAMED IN	O DESCRIPTION OF THE PERSON NAMED IN
Total		184,142	-6.1	42,172	42,853	1.6	9,187	7,375	-19.7
District 5:	196,071	104,142						S COME	1337 123
Alaska	1,405	1,767	25.8	a Page 1	-	9.7	0	4,361	48.9
Arizona	16,993	19,624	15.5	5,761	6,321				18.8
California	187,827	186,660	-0.0	47,609	39,158		(2)	117	
Hawaii	(2)	2,835		(2)		65.1		172	-10.4
Nevada	13,087	13,573				-26.6	8,696	13,558	56.0
Oregon	29.263	25,052		600				3,433	
Washington	19,380	17,157	AND DESCRIPTION OF THE PERSON	-6.00	SECTION AND PERSONS ASSESSMENT	OR STREET		42,501	-4.5
Total	267,955	4,224,53		1000 600		-	100 000	438,659	-0.1

OCTOBER, 196

Don't fall into the "convenience

WHEN ASKED, "ARE YOU IN FAVOR OF FREE ENTER-PRISE AND A FREE ENTERPRISE SYSTEM?" practically every L.P. gas dealer will answer an emphatic "Yes!" As a matter of fact, most of them will agree that competition is necessary and helpful. Most dealers, too, will admit that they got into the L.P. gas business, or expanded their business, by competing with other fuels or other L.P. gas dealers.

But as soon as someone starts actively competing with them, too many are ready to abandon the philosophy of free enterprise and the theory that competition is healthy. Too many of them will readily agree to, or even be a party to, attempts to restrict competition (at least against themselves). Others seem to believe that the fact that their business is not doing as well as it did in previous years, or that their profit margin is down, justifies the attitude that legislation and/or regulation can make their inefficient operation efficient or make up for inadequate service or sales effort.

Of late, this type of thinking has been demonstrated all too frequently in conversations, proposals and—most alarmingly—in the introduction of bills in state legislatures. These bills would require that prospective L.P. gas dealers justify their entry into the business on the basis of "public convenience and necessity." In some instances, existing dealers could be required to justify their continued existence on the same basis if "challenged"—or perhaps they could even be required to justify their continued existence every year in order to obtain a new "license" or "permit to do business."

Too many L.P. gas dealers are offering such legislative proposals under the guise of providing safe, reliable, dependable service for Mr. and Mrs. L.P. Gas Customer. But we must ask, "Who is to be protected and from what?" Is it really their intent to protect Mr. and Mrs. L.P. Gas Customer from unscrupulous operators, to insure that they are provided with safe L.P. gas installations, to insure that they have a dependable supply of gas; or are they actually aimed at protecting existing L.P. gas dealers from competition either fair or "unfair"? A careful and objective review of such proposals can lead to but one answer.

On the surface the provisions requiring L.P. gas dealers to justify their existence on the basis of

such requirements as "public convenience and necessity," financial responsibility, adequate insurance and/or compliance with minimum storage requirements might appear to be in the best short-range interest of dealers presently established in a given state. But what about the longer range outlook? What does such a proposal offer for the L.P. gas industry in the next several years?

Typical proposals would establish some regulatory body, whether it be an L.P. gas commission, an L.P. gas control board, an L.P. gas administrator or similar agency as a rule-maker, judge and jury for determining the necessity of additional L.P. gas dealers, or even the continuance of existing L.P. gas dealers! The regulatory authority involved would be given sweeping powers to make such determinations without specific guideposts, criteria or limitations, and without establishing methods of review or appeal of decisions the authority might make.

This may be fine with present regulatory personnel. They may have knowledge of industry's problems and recognize the pitfalls of taking undue advantage of the broad authority such legislative proposals would give them; but what happens to-morrow? Joe Doaks, your Friendly L.P. gas administrator, may no longer be present. People and the attitude of people change; tomorrow you, as an L.P. gas dealer, may be existing at the pleasure of an administrative authority, to whom you have helped give broad, sweeping authority. This administrative authority may be more interested in empire building and exercising its "control" or authority than in the well-being of you, your industry, and your customers.

Under such conditions, it is entirely possible that ultimately (and sooner than you might expect) only one, or certainly very few dealers would be left to serve an entire state. There would be natural attrition: dealers would go out of business, others would die, some would be purchased by larger dealers. But is is unlikely that there would be new dealers coming along to replace them.

If this logical result is not enough to dissuade you from promoting such legislative proposals, let's look a little further into the future. The apparently Utopian aspects of such proposals, which some advance as justification for L.P. dealers to support

"Don't think for a moment that you can expect to have economic-type qualifications for dealers without very shortly getting into the area of price controls, franchise area limitations, and restrictions on margins of profit, because they go together like Khrushchev and Communism."

them, are not the whole story. Additional restrictions of a very stringent nature would be inevitable.

What would be likely to happen, after most of the competition had been eliminated, is that the remaining operators would be unable to resist the temptation to render less service to their customers, greedily start charging excessive prices, and do all the other things that competition in a free enterprise system normally prevents. Then the L.P. gas customer would begin to take note of the fact that the L.P. gas industry was having its cake and eating it too.

From this point on, the consequences can be predicted with certainty. The public would clamor for additional restrictions to protect them from these dealers. The regulatory authority and/or the legislators would respond with new restrictions. These would take the form of controls based on "public convenience and necessity" for doing business, and would involve price controls, franchised areas of operation, limitation on profit margins, approval for price increases, approval for expanded areas of operation, etc.

You say that sounds like public utility control? You are right: it is. It's the accepted meaning of "public convenience and necessity." And don't think for a moment that you can expect to have economic-type qualifications for dealers without very shortly getting into the area of price controls, franchise area limitations, and restrictions on margins of profit, because they go together like Khrushchev and Communism.

You, as an L.P. gas dealer (if you were fortunate enough to still be in business) would inevitably be faced with additional restrictions on what you could do, how you could do it and whom you would have to ask before you start. (One recent legislative proposal contemplated this and went the full distance, even incorporating provisions for price regulation.)

The net result would be that in a few short years the L.P. gas industry would have come under strict public utility type control. Is this desirable? Some of you will say that it is. Some of you will say that you would rather operate under such controls and thereby be able to assure yourselves of an "adequate" margin of profit rather than having to deal with what you may term "unfair competition."



Dyer is Technical Representative, Engineering Department, Phillips Petroleum Company.

Before you take a firm stand on this, give it some thought.

How many public utility companies serve natural gas to the consuming public in your state? How many public utility companies serve electrical power to the consuming public in your state? Very few! Don't you really expect that ultimately, under public utility-type regulations and control, there would only be a few L.P. gas public utility-type companies serving L.P. gas to the consuming public in a given area? Certainly, it is logical to expect that the number of "dealers" operating under public utility-type legislation or regulation would be very small compared to the number of dealers rendering service in a given area today.

This means that if you endorse public utility type regulations as desirable, you are, in effect, saying that you are willing to gamble that you will be one of the few who would remain in business when the final marketing lines were drawn, when attrition has taken its toll, and when one or a few larger dealers have purchased the smaller ones. Are you willing to take such a risk? Is this the prospect that you, as an individual, will want to look forward to, or that you will want your business or company to look forward to?

Also, if you favor such restrictions, you are saying that you like the idea of asking permission to expand your business.

Now, there are some of you who will say, "I don't want to restrict or restrain competition by legislation; my only interest in such legislation is to try to eliminate the 'fly-by-night' operator who makes unsafe installations, cuts prices by selling substandard appliances, and thereby jeopardizes the future of all reputable L.P. gas operators in the industry." This is a commendable outlook: but strict

"Typical proposals would establish some regulatory body, whether it be an LPG commission, an LPG control board, an LPG administrator or similar agency as a rule-maker, judge and jury for determining the necessity of additional LPG dealers, or even the continuance of existing LPG dealers!"

ALL PRODUCTS

PORTABLE STEAM CLEANER



MODEL T

OPEN 10 NEW BOTTLED GAS CUSTOMERS weekly with this Portable, compact LPG Steam Cleaner. Steam in 30 seconds! Cuts grease and mud in a jiffy. Needed by garages, service stations, repair shops, in try. Safe, foolproof; ready to operate; inexpensive. A hot resale item for a go-getter.

ENGINE BLOCK HEATER



Ends Winter **Engine Trouble**

Mdl. "L" for water

MITCHELL VAPORIZERS

Provides all the vapor pressure you need, even at zero temperature, from your present storage tank. No need to add expensive thorage to add expensive storage tanks to maintain vapor pressure. Install



MODEL MV-78HP Cap. 70 gals. per hr. MODEL MY-305 Cap. 30 guis, par hr.

ALCOHOL INJECTOR



CAT. NO. 533

Write for new FINE Catalog 560LP

Offers 2000 LP Items

PRODUCTS CO.

6240 OGDEN AVE. BERWYN (Chicago Sub.) ILLINOIS

"Convenience and necessity"

"Is it really their intent to protect Mr. and Mrs. L.P. Gas Customer from unscrupulous operators, to insure that they are provided with safe LPG installations, to insure that they have a dependable supply of gas; or are they actually aimed at pro-tecting existing LPG dealers from competition either fair or unfair?"

control on who can enter the L.P. gas business or who can remain in the business is not the way to cure this ill. The operation can be a success but the patient still might die.

If you are really concerned about substandard installations-if you are really fearful that a "fly-bynight" operator is going to jeopardize your reputation and that of the industry as a whole-don't fall for public utility regulation. The sound method of guarding against this situation is to first make certain that your own house is in order; make certain that you are making installations that comply with recognized industry standards and your state safety regulations. You will then be in a position to request assistance from your state administrator in assuring compliance with present rules and regulations. You can work with him in spot inspections in any problem area to make sure that safe and proper installations are made. To accomplish this end, you don't need to demand more stringent rules and regulations; you need to see that the ones you have work.

The other typical complaint is that the "fly-by-night operators pirate customers from reputable dealers." No one will deny that this happens. But recall how you got most of your customers: you sold them or convinced them that you could provide a desirable, useful product and a needed service. What makes you think this initial selling gave you a permanent, exclusive right to them as customers?

What does the fly-by-night operator offer? Product, at an attractive price. What else? Very little or nothing.

What do you offer as competition? Product, perhaps a slightly higher price. What else? Presumably, a dependable supply of product, a good line of appliances, prompt delivery, and reliable service.

Do you feel you can properly tell your customers once about these added features or services and expect them to remember it forever? Would you not do better to repeat the selling job? In "selling" this service, you will not only keep your present customers; you may also sell appliances, replace old ones, and develop new loads.

Certainly this should be a better method of keeping customers than to ask a regulatory authority to build a fence around them for you.

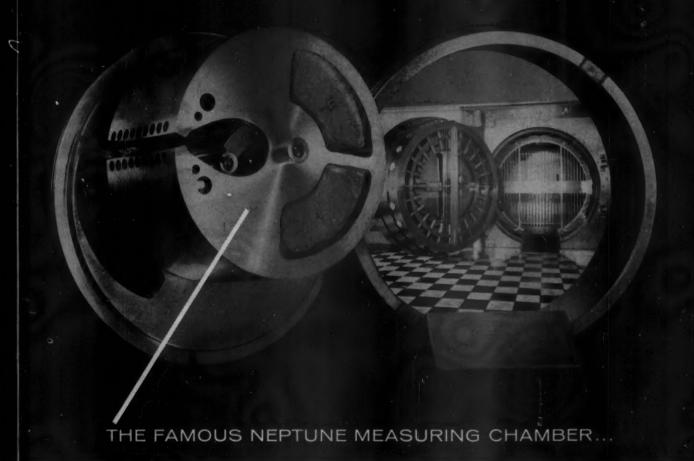
Until a few years ago, public utility-type legislative proposals for the L.P. gas industry were usually prompted by local public demand for industry economic regulation or by some public officials who wished to extend their jurisdiction and authority. But today

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

we find, to our alarm, that they often emanate from the industry itself.

Have you been a party to the promotion of this type of legislation or have you been thinking in this direction? If so, perhaps you'll review your thinking and consider the long-range prospects of such activity. It's high time the L.P. gas industry and its individual members started looking at what will happen after tomorrow or after next year if such legislative proposals are adopted. If this thinking and philosophy is not corrected, the L.P. gas industry as we know it today-a free, competitive and dynamic industry -will fade away to become a completely regulated and restricted industry.





Accuracy you can bank on



Banks depend on vaults to protect their assets. You depend on meters to protect your profits. They tell you what to pay and bill, guard against hidden losses, and protect your customer good will.

But a meter that isn't trustworthy can cut deeply into profits. Repairs to keep it in line can be costly, too. That's why sustained accuracy is the most important consideration when buying a meter. All other factors take a back seat.

Any meter is only as accurate as its measuring chamber. We believe the

Neptune chamber is the finest available combination of both accuracy and reliability. It's simple...only one moving element. Because the meter has double-case design, its accuracy is not affected by pressure changes. Through precise machining, it achieves true capillary seal. This controls slippage and practically eliminates metal-to-metal wear.

Coupled with other features such as no-drift "gear shifter" calibration, it gives you true sustained accuracy. Specify Neptune... the meter you can bank on.

NEPTUNE METER COMPANY

47-25 34th St., Long Island City 1, N. Y. Branches and Jobbers in All Principal Cities in Canada: Neptune Meters, Ltd., Toronto, Ontario

LIQUID METER DIVISION



Cylinders and tanks getting smelly? Here's how to deodorize them . . .

In our June issue, Reader R. G. from Maine asked, "How do you remove the smell from propane gas cylinders which becomes strong when the supply of product gets low?" We suggested he read the February, 1954, and June, 1955, issues, each of which contained an article on the subject.

When we published the reply, readers from all over the country began writing in, asking for tear sheets of the two articles. Because of the intense interest in the subject, we present here excerpted information from both of them.

THE CHARACTERISTIC ODOR OF COMMERCIAL LPG tends to become stronger as a cylinder's (or tank's) service life lengthens.

The reason for this is that the gas itself, which is odorless, boils at a slightly lower temperature than the odorants that are put into it at the refinery. As a result, when the cylinder becomes low on gas, the concentration of the odorant increases, since proportionately more gas than odorant will have vaporized. Each time the cylinder is refilled and the gas supply therein is drawn off, the concentration will rise a little higher than before.

After a time, whenever the gas

supply in the vessel gets low, the odor of the gas issuing from appliances will increase to a point where it becomes objectionable. Ultimately, even when the cylinder is relatively full the odor will be strong enough to bring customer complaints.

There is another time in the life of a tank when a strong odor becomes a problem—when it is to be retired from service. Salvaged tanks can be ideal for storing water, but they must impart no taste or odor to the contents.

In the June, 1955, article, which was adapted from Pressed Steel Tank Co.'s "Cylinder Tips," these solutions to malodorous cylinders were suggested:

- Place the cylinder in heavyusage installations. The rapid withdrawal will tend to keep the product boiling with the result that it will carry with it a greater amount of odorant.
- Locate the cylinder in a situation where the gas will be consumed outdoors, and where the odor, consequently, will be less objectionable.

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

• Purge it by putting a pound or two of LPG into it and allowing it to stand for 24 hours. The liquid will absorb the concentrated odor. Then turn the cylinder upside down and drain it. Caution: keep a safe distance from buildings and property lines, and drain the cylinders only when there is enough wind to disperse the gas. Or pipe the liquid away, through a length of copper tubing connected to the cylinder valve, and burn it.

 Wash out the cylinder with kerosene, a good odorant solvent.
 Bury or burn the kerosene when you are finished.

• Steam it out. This can be done by inverting the cylinder and injecting live steam into it. A manifold setup for purging several bottles simultaneously is recommended. After the purge is complete, the cylinder must be thoroughly dried out.

In the February, 1954, article, several methods of preparing old tanks for retirement to water storage were suggested. All utilized trisodium phosphate, known in the chemical industry as "TSP."

In one method, TSP was applied in conjunction with steam cleaning, replacing the conventional soap compound used in ordinary steam cleaning jobs. The following table was prepared as a guide:

Tank	TSP	Steaming	
Capacity	Required	Time	
100 gal.	5 lb.	2 hr.	
250 gal.	8 lb.	21/2 hr.	
500 gal.	121/2 lb.	3 hr.	
1000 gal.	20 lb.	4 hr.	

After steaming is completed, fill the tank with either hot or cold water and thoroughly rinse it out. TSP is highly soluble, so the residue washes out readily.

If a steam cleaner is not available, the TSP can be put into the tank, and the tank filled with water and allowed to stand for a day or two. With this method, it is recommended that the TSP be mixed in a bucket and bled into the tank when the water is injected.

If the tank is to be placed in gas service again after such treatment, it should first be thoroughly dried and purged of air. Methods for accomplishing this were described in "How to purge a customer's tank," by Harris A. Goodwin, in the May, 1961, issue.

THERE IS NO SUBSTITUTE FOR PROFIT



ARKLA GASLITES
The most popular decorative and practical home improvement on today's market.



ARKLA GASIGNS
Sensational new high profit load builder.
Modern designs for every business.
A must for 1-P-Dealer signs



CUNO AQUA-PURE WATER FILTERS
Crystal clear pure water for home and business

Are You Satisfied with the money you made last year? Like to increase your profits this year? You can as a Beaird LP-Gas dealer.

Here's why! As a Beaird dealer you don't have to go-it-alone. Beaird has a full-time sales organization ready to give you personal assistance the year 'round. These experienced LPG-men will help you to arrange long term financing of systems, transports, bob tails, filling stations and storage needs. Or help you train your personnel in the use of Beaird merchandising aids that will increase sales. You will also profit from a nationwide stocking program that puts millions of dollars worth of LP-Gas systems in local inventory points to reduce your costs.

And now... Beaird has added new lines of "hot" selling items your customers will want. These include the sensational Cuno Aqua-Pure Water Filter and the Arkla line of Gaslites and Gasigns. Put these fast selling "load building" products to work for you. Send for literature today.

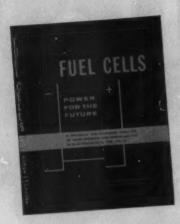
For bigger profits . . . look into a Beaird dealership.

AMF BEAIRD product

THE J. B. BEAIRD COMPANY, INC.

A Subsidiary of American Machine & Foundry Company SHREVEPORT, LOUISIANA

Will fuel cells make propane the power source of the future?



A book review
of unusual length
about a subject
of unusual interest
may well be
the best news
this industry
has heard in years

ROBERT CLAY . Managing Editor

THE FUEL CELL SHOULD SOON BECOME A MAJOR ENERGY SOURCE IN AMERICA with almost every sector of society benefiting. And propane offers the best possibility of emerging as the fuel for fuel cells.

Those are the two most important conclusions to be drawn from a book titled, "Fuel Cells—Power for the Future."* Co-authored by five engineering and four business and liberal arts graduates, it was a group thesis for master's degrees from the Harvard Business School. As a study in the fuel cell field, it is a landmark, as indirectly indicated in the preface:

"While some brief articles had been published in various business and engineering journals describing fuel cells in general terms, the majority of writing was of a technical nature and was directed to electrochemists. Our study, economic and engineering in nature, was to be directed not only to a technical audience, but also to the general business audience."

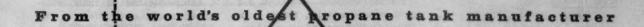
This, then, appears to be the first actual dollars-and-cents evaluation of the fuel cell and some of its many apparent applications. Since it draws quite a number of specific, concrete conclusions in a field still in its infancy—and since some of these conclusions either include or exclude vast numbers of the myriad possibilities—this is bound to be a controversial study. It therefore seems necessary to

substantiate the work by revealing that the students: (1) Studied textbooks, lectures, articles, papers and patents; (2) Traveled over 10,000 miles at their own expense to get first hand knowledge from companies and individuals doing research in this and related fields; and (3) Submitted this study to some 15 experts for pre-publication criticism and suggestions.

All this effort was channeled toward two objectives, which the students spell out in the preface: "One objective of this study was to determine the commercial and engineering practicality of present and potential fuel cells. This has been done by establishing a method of evaluating fuel cell performance (Chapter 4), analyzing existing fuel cell developments (Chapter 5) and comparing present and future fuel cells with conventional sources of power in various power applications (Chapters 7 and 8). We hope that our unique approach for economic evaluation . . . will be a major contribution to the art and science of fuel cells. A second and equally important objective was to investigate the status of fuel cell technology and to present the technical operations and limitations of fuel cells (Chapter 2) and to investigate the various chemical fuels used in fuel cells (Chapter 3). In addition, it was desirable and necessary to include a technical and economic discussion of DC motors to complete the fuel cell study (Chapter 6)."

A preliminary conclusion the reader must assimilate is that "the fuel cell is definitely not in the class of exotic power sources and should soon play a major role in

o "Fuel Cells—Power for the Future" is written by graduate students at the Harvard Business School. Soft-bound, 160 pages, 8½ x 11; 318.75; Fuel Cell Research Associates, Box 157, Cambridge,



The MASTER LION

The emblem of MASTER quality for...

DOMESTIC TANKS
STORAGE TANKS
TRANSPORTS
DELIVERY UNITS
PLANT PROCESSING VESSELS

The Master Lion... for twenty-six years the symbol of leadership in steel fabrication. Know-how and experience have built the Master Lion into a sure sign of safety and performance on every Master product. Master tanks are shipped all over the world from centrally located plants in Quincy, Illinois and Dallas, Texas, attesting to their quality in fabrication

and design. The next time you have need of the best, the finest and the foremost, call on a Master Man!

TANK & WELDING

2000 S. Front St. . Quincy, Illinois . BAldwin 3-5014
P. O. Box 5146 . Dollos, Texas . Riverside 7-2441
MASTERPIECES OF STEEL FABRICATION

industry." That statement is much easier to comprehend when one is made aware that there will be three stages to fuel cell development, corresponding roughly to: (1) right now, (2) five years from now, and (3) 10 years from now. The corresponding terms are: present, near-term, and long-range.

Among present cells, the one closest to being practical for commercial applications is the hydrogen-oxygen cell developed by Union Carbide Co. The near-term fuel cell, the study concludes, will most likely be the dissolved methanol fuel cell. Monsanto Chemical Co. and Esso Research and Engineering Co. are ahead on this one.

The long-range cell—and remember, that's only about 10 years off—is the low temperature, low pressure hydrocarbon cell. This is the device that's expected to move mountains in 10 to 15 years. And, should the study's conclusions come true, this is the cell that will cause a major upheaval in the petroleum industry.

A fuel cell, it must be remembered, is nothing more than a highly sophisticated way of combining hydrogen and oxygen. Present cells use pure oxygen but future cells are expected to simplify—by means of yet-undiscovered catalysts—things to the extent that ordinary air will supply the oxygen. The big problem, then, is getting the hydrogen; and small molecule hydrocarbons appear to be the answer to the Harvard grad

students. Propane is mentioned most often—actually, almost continuously. Butane and ethane, however, are also mentioned.

Here's the way the study thinks it will all work out. Propane will replace gasoline as the principal product of refineries! When this happens, demand is expected to boost the price of propane about 50 per cent for large users, about 400 per cent for small users.

These two increases are assumed in all calculations to determine the economical practicality of the long-range hydrocarbon fuel cell for a wide assortment of applications, to provide both mechanical power and electrical power.

To determine the mechanical aptitude of the fuel cell, the group selected eight specific applications "chosen as representative of the wide range of possible mechanical power systems." They are: city delivery trucks, industrial trucks, automobiles, construction equipment, light aircraft, locomotives, outboard motors, and marine applications.

The long-range hydrocarbon fuel cell proved physically and economically suitable in seven of the eight applications. The only absolute exception was the light plane, where the application proved comical rather than practical. The weight of the cell and its attendant DC motor would be more than double that of a comparable plane powered by a conventional engine. In two other applications, autos and outboards, the possibilities seem limited to smaller or slower units.

Autos-because of their widespread usage, their effect on the nation's economy, and the interest they always seem to generateseem worthy of a closer look in this review. The study came up with 12 different sets of figures, representing three different kinds of cars, each with a present gasoline engine, a present fuel cell, a near-term fuel cell, and a long-range fuel cell. The three kinds of cars were: a 4000-lb family car with an 80-mph top speed, a 2400-lb town automobile with a 50-mph top speed, and a 4000-lb taxi with a 50-mph top speed. Present and near-term fuel cells proved impractical for all three types. The long-range propane-air cell looks as if it would work very well in the town car and taxi, but it would be too heavy and expensive for the high speed family car. In the two slower vehicles, the long-range fuel cell power plant (including DC motor) would carry a slight weight penalty, but would offset this by cutting power-plant volume to half that of a normal engine. Initial costs would be in the range of present engines, but operating costs would be only a small fraction of what they are now, 0.4 cents per mile for the town car, 0.8 cents for the taxi.

The report sums up the mechanical power application picture like this:

"We expect that it will be about 10 years before we see widespread use of fuel cells (assuming the required breakthroughs in cell performance are accomplished) in automobiles, construction equipment, and electric drive marine installations. Use of fuel cells in locomotives and ships (other than electric drive installations) will probably not occur for 15 years. Applications which experience high operating costs, such as delivery trucks, industrial trucks, and possibly taxicabs, may use fuel cell power sooner than 10 years, perhaps in 5 years. . . . Economical fuel cell operation holds great promise for many other applications. For example, city transit buses, street cars, and subways would not require the construction and maintenance of unsightly overhead power cables if they were operated by the fuel



These attractive highway billboards stem from the cooperative effort of members of Florida's East Hillsboro County Gas Association. Participating are propane as well as natural gas dealers.

Announcing the new, revised

HANDBOOK BUTANE-PROPANE GASES

Ready for delivery about October 1st, 1961

A completely revised and up-to-date edition of the volume that has long been recognized as the liquefied petroleum gas industry's most authoritative technical manual.

TABLE OF CONTENTS

Progress of the Industry
The ABC of L.P. Gas
Properties of the Hydrocarbons in L.P. Gas
Properties of Butane-Propane Mixtures
Volume Correction Factors
Analytical Determination and Testing
Fire Protection and Control
Natural Gasoline Plants, Recycling Plants, Oil
Refineries
Delivery by Truck, Rail, Water, Pipe Lines
L.P. Gas Storage
Pumping Systems
Liquid Metering
Vapor Metering
Vapor Metering
Installing and Servicing L.P. Gas Systems
Semi-Bulk Systems
Gas Utility Service from Central Plants
Multiple Utility Service from a Central Plant
Comparative Performance with Other Fuels
Appliance Installation and Testing
Domestic Applications
Commercial Applications
Industrial Applications
Industrial Applications
(including Flame
Weeding)
Enrichment, Peak Load, and Stand-by Uses
A Fuel for Internal Combustion Engines
L.P. Gas Insurance
Pipe Sizing
Handy Tables for Field Use

Price \$15.00 per copy

Orders accepted now for fall delivery

We pay postage on domestic orders accompanied by check or money order. In California add 60¢ for sales tax. All foreign shipments must be prepaid and postage charge added and included in payment.

Published by BUTANE-PROPANE NEWS

A Chilton Publication

198 S. Alvarado St., Les Angeles 57, Calif.

Did You Know?



Side cabinet mounted spring rewind and electric rewind reels.

PROFITS GO UP WHEN YOU USE HOSE REELS

Time and labor wasted in coiling and uncoiling hose by hand can be better used to make more deliveries. More deliveries mean more profit to you. That's why your product and vapor hose lines should be handled on safe, efficient, time-saving reels.

The wide range of sizes, hose capacities and rewind power units, offered by Hannay reels, lets you select the exact reel or combination of reels for your specific needs. And, Hannay reels are engineered to maintain maximum flow rates with the lowest possible pressure loss through the reel.

Ask your Tank Truck Builder or LP-Gas Equipment Dealer for the free pocket-size guide "Efficient Hose Handling for LP-Gas Delivery", or send your request directly to Hannay.

> Symbol of Efficient Hose Handling



CLIFFORD B. HANNAY & SON, INC. WESTERLO, NEW YORK

SAVE TIME - SAVE MONEY by using

VIKING LP-GAS PUMPS

TRUCK MOUNTING



Double your truck pump capacity with Viking's NEW model KK260U pump! It's built to handle 80 G.P.M. at 50 P.S.I. differential pressure operating at 700 R.P.M. With sufficiently large inlet lines and fittings, this pump will give you this doubled capacity with ease.

BULK PLANT

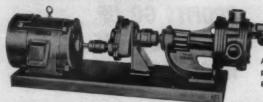


Fig. 208

A compact, quiet bulk plant unit with helical gear reducer.

Viking's NEW helical gear driven bulk plant pumping units come in four sizes—30, 40, 75 and 95 G.P.M. They will help you step up your LP-gas loading and unloading.

Both bulk plant units and truck mounting pumps incorporate Viking's exclusive, cost cutting, automatic pressure lubricating system for the idler bearing, as well as O-ring gaskets, Roto-Ring mechanical seals, return-to-tank valves and other features.

SO VI

For full information, ask for catalog HB and SP-527B

VIKING PUMP COMPANY

Cedar Falls, Iowa, U.S.A. .in Canada, It's "Reto-King" Pumps See Our File in Butane-Propane Catalog

The HIDY DEGREE-DAY RECORDER WILL

SAVE YOU UP TO 30%

ON TRUCKING AND BOOKKEEPING COSTS

Would you pay \$95 a year rental to save up to \$9% on your book-keeping and trucking coosts? That's what hundreds of users of the HIDY degree-day system are saving every year. With this system you can deliver more gallons per mile—make fewer trucks do the same job. Can be bought or leased. In use in all parts of the country. The most accurate, easiest to install, simplest to maintain degree-day recorder on the market—and that statement is backed by \$1000 reward for anyone who can prove otherwise! Write for full story of this money-axing, work-saving plan—ask for Bulletin BP10.

Please state whether you already operate on Degree Day system.

HIDY-BROWN RECORDER COMPANY

RD. CINCINNATI



(Note: Some territories still available for sales representatives. Write for in-

Fuel cells

cell. The gasoline farm tractor is another vehicle which could be replaced by a fuel cell farm tractor. Fuel cell-powered irrigation and oil pipeline pumps are attractive because of the lower maintenance required for the fuel cell-DC motor system."

While this study finds such great and diversified promise for the fuel cell's mechanical applications, its outlook for electric power applications is not as extremely enthusiastic as might be expected. This is particularly true with the application we hear most frequently discussed in the gas industries—the truly all-gas house, with a fuel cell providing all electricity. Instead, the study concludes that the chief domestic use for the fuel cell would be beyond present electric systems -both in remote areas in this country and in the large undeveloped continents, Africa, South America, and Asia.

To sum up the rest of the electric power plant picture, the study found that "it is very possible that the high temperature fuel cell will prove to be a competitive source of power in small capacity power plants." And if the cost of propane remained at its present level, the low temperature fuel cell "could almost equal" the predicted cost of electricity from large atomic plants.

The conclusions on auxiliary and portable generating plants are also very optimistic:

"Fuel cells may make a slight entry into very small size stand-by and small power applications within five years, and will become a major factor in the stand-by and small power plant field within ten years. If the fuel cell develops as anticipated, it is probable that most new installations . . . after 1970 will be fuel cells."

This is certainly one of the most important books on LPG usage written in recent years, for it forecasts—through logical economic methods—great changes that should surely affect this industry in many ways. And it certainly must be one of the most interesting books ever reviewed in BPN, for nothing is as fascinating as the future.



For further information on any items in this section use the convenient Univac Readers' Service postcards on pages 83, 84.

New Products and Free Literature



Gas heater suitable for negative-pressure areas

Circle 1 on Readers' Service Card

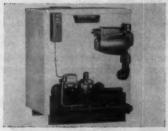
A new sealed flame overhead gas heater is now being marketed. It combines a uniformity of room temperature with complete safety of operation. It is especially suitable for use in areas where a negative pressure is created by standard exhaust fans. Two sizes are available with inputs of 115,000 and 85,000 Btu per hour (GEC-410). John J. Nesbitt, Inc.



Manifold kits provide for multiple installations

Circle 3 on Readers' Service Card

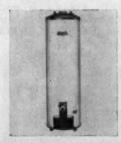
Uniflo manifold kits to simplify multiple installation of "Jetglas" instantaneous booster heaters are now available. These kits provide for dual, triple, or quadruple parallel installations. The kits are factory fabricated and consist of precision engineered, pre-formed sections of rust-proof copper tubing (GEC-810). Day & Night Manufacturing Co.



Cast iron gas boilers are factory packaged

Circle 5 on Readers' Service Card

A new line of factory packaged, cast iron residential gas fired boilers is available in three sizes: 75,000, 100,000, and 125,000 Btu input. Series "MMF" features: cast iron boiler sections, burners and base, modern flat top design with draft hood extended from rear, flush type steel jacket, gas controls (GEC-420). Peerless Heater



Automatic gas water heater has variable Btu input

Circle 2 on Readers' Service Card

This laundrymaster automatic gas water heater is now being marketed. When the selective dial is set, the heater adjusts its burner flame to 36,000 Btu, which provides for a 30-gal hot water recovery per hour, or to 60,000 Btu with 50-gal per hour. Temperature control is pre-set at 145 deg. F. (GEC-860). Ruud Mfg.



Valve for low-capacity room or central heaters available

Circle 4 on Readers' Service Card

Four inlets and outlets for any piping installation are featured on this new unit valve for low-capacity room or central heaters. All connections and adjustments are located on top of valve to allow easier operating and servicing. Other features: gas cock knob, pilot adjustment screw (GEC-820). Minneapolis-Honeywell.



High-pressure regulator has positive lock-up

Circle 6 on Readers' Service Card

This new high-pressure regulator is developed primarily for use with portable L. P. gas appliances, torches, and in the carburetion field. It assures positive lock-up. A choice of T-handle or square head adjusting screw, each with locknut, provides easy adjustment over the 1 to 45 psig delivery range (GEC 700). RegO, Bastian-Blessing.



Pipe repair clamp comes in wider range of sizes

Circle 7 on Readers' Service Card

This heavy duty "patchmaster" is now available in a wider range of pipe sizes from ½- to 24-in. in standard pipe sizes and from 2-in. through 8-in. O.D. pipe sizes. The band resists corrosion and conforms to pipe contours and irregularities (GEC 370). Aeroquip.



New automatic clothes dryer has companion washer

Circle 8 on Readers' Service Card

A new automatic clothes dryer and companion washer features ultra-sensitive controlled drying. It has an exclusive twin air stream principle combining sun-like heat and breeze-like drying. The quiet operation is a dominant feature (GEC-120). Hamilton Mfg. Co.



3-in.-type filler valves are high capacity units

Circle 9 on Readers' Service Card

Filler valves with 3-in. types D139 and D141 are high capacity, heavy duty units intended for use on large ASME storage containers in bulk plants and delivery trucks. (GEC-820). Fisher Governor Co.



New burner heats from "keep-warm" to boiling point

Circle 10 on Readers' Service Card

This new gas burner incorporates the relative heat range all the way from a gentle "keep-warm" flame to a rolling boil. It will also melt butter at low setting without burning the paper plate. The burner reaches a maximum of 12,000 Btu at high setting (GEC-240). Magic Chef.

Innovation gives radio equipment better sensitivity

Circle 11 on Readers' Service Card

A technological innovation called the "Raser" has been designed to improve the distance covered by transistorized two-way radio sets up to 43 per cent. This invention gives transistorized radios better sensitivity than tubed receivers (GEC-140). General Electric.



Gas range features new designs for fall season

Circle 12 on Readers' Service Card

This "top-of-the-line" gas range features trimline backguard, spill-proof top, tapered chrome handles, and ceramic pattern in oven window. These features are coupled with traditional quality, including rust-proof porcelain interior and "uni-weld" construction (GEC-240). Enterprise.



New line of "slide-in" gas ranges introduced

Circle 13 on Readers' Service Card

This new line of "slide-in" gas ranges comes in two sizes, one at 30-in. and the above, 20-in. The new ranges give the custom look of built-ins. They require no special cabinet cut-outs and are installed as cheaply as a free-standing range (GEC-240). Hardwick.



New concept in pipeline pigs now available

Circle 14 on Readers' Service Card

"Sweegee," a new concept in pipe-line pigs, is designed primarily for removal of water after hydrostatic tests on pipelines. Available in sizes to fit any pipe through 48-in. I.D., the pig is made of foamed plastic, molded in a bullet-like form (GEC-770), SWECO.



New lift-truck series features new engine, mast

Circle 15 on Readers' Service Card

Seven new lift trucks featuring new engine, mast, forks and carriage, and power steering as standard equipment are now available in gasoline, LPG, and diesel units (GEC-485). Allis-Chalmers.



Ring-type gas burner used for large heating processes

Circle 16 on Readers' Service Card

This 6-ring port type burner is equipped with individual "Buzzer" Venturi air mixers. It is designed to utilize gas efficiently by simple connection through a manifold to available gas supply at atmospheric pressures. The burner meets the requirements of many of the larger heating processes (GEC-080). Charles A. Hones, Inc.



Hand-portable extinguishers come in five models

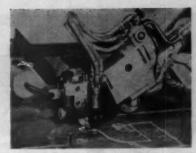
Circle 17 on Readers' Service Card

This hand-portable fire extinguisher comes in five models, which have been given the highest performance rating for equipment of their kind. They have capacities of 5, 10, 12, 15 and 20 lbs of carbon dioxide with total weights of 16, 34, 36, 42, and 57 lbs (GEC-710). Chemetron Corp.

19-lb flame-cutting machine is equipped with clutch

Circle 18 on Readers' Service Card

Cuts in metals ranging in thickness from light gauge sheet to 2in. can now be made with a new



19-lb flame-cutting machine. It is said to be the only machine of its type or size equipped with a clutch. The machine operates at speeds up to 30 ipm and can be used with acetylene, propane or natural gas (GEC-780). Linde Company.

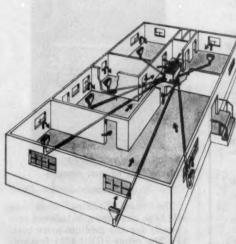
New ice melting product combines 2 new chemicals

Circle 19 on Readers' Service Card

This product is said to have the penetrating power to melt a 2000-ft area of ice in 26 minutes. "Penetral" enables the highly effective granules to penetrate instantly through hard ice formations even during sub-zero temperatures. Rust and corrosion of metal surfaces are

TEMCO

engineers new gas central heating duct system floor furnace



HERE'S HOW IT WORKS:

This is a new heating application - an 85,000 BTU gas floor furnace with built-in heavy-duty blower and eight duct take-offs designed to fit in the opening of most large capacity BTU floor furnaces. Special features include built-in return air and discharge plenum. No special sheet metal work is required.

HERE'S WHAT IT MEANS TO YOU:

(every floor furnace user can now switch to central heating quickly and inexpensively)

REPLACEMENT SALES

(every new floor furnace prospect can be switched to TEMCO's gas central duct system floor furnace)

NEW BUSINESS SALES

If you've been looking for more business . . .

MAIL THIS COUPON TODAY!







Model Number FF 85 Patent pending

Tomco, Inc., Nashville 9, Tenn. Bapt, BP Please send me the name of my necrest Tempo distributor, and specifications and detailed information on the Temco Gos Central Heating Duc System Floor Furnace.

HAME_

Clip this coupon, write your name, attach to your letterhead and send to above address.

SMITH PUMPS



for TRUCK DELIVERY



Model TC-2

MODEL TC-2 30 GPM—2" inlet, 40 GPM—2½" inlet For 500 rpm power take-off using 1½" meter. No lubrication, adjusting or service required. Safest pumps made; best mechanical seal, strongest case. UL approved models and special steel flange models available.



For 500 rpm power take-off on large truck transports and high-flow delivery trucks with $1\frac{1}{2}$ " and 2" meters. Fastest delivery rate; longest service. UL approved models available.



For 1800 rpm high-speed power take-off. Multiple outlets; flanges on pump ports. Used with automatic transmission trucks. Models ATC-2R and ATC-2L pump 30 gpm with 2" outlet; 40 gpm with 2½" outlet. Models ATC-3R and ATC-3L pump up to 100 gpm.



Model TC-3

Model ATC-2

MODEL TC-1044H 15 GPM-20 GPM, 500 RPM-900 RPM For filling trailer bottles and cylinders from trucks. Fills 20 lb. in less than one minute; 100 lbs. in 3 minutes. With 2" inlet piping can be speeded up to 900 RPM. Delivers to 35 gpm without meter.

SMITH PUMP EXCHANGE PLAN

ALL MODELS of Smith pumps may be exchanged for factory rebuilt pumps of the same model, guaranteed to be in equal-to-new condition. Return old pump after exchange pump is received. No downtime loss. Save about one-half the price of a new pump! Wire or phone collect for fastest service.

Send for 1961-1962 Catalog "T"

MUrray 2-2293 and Murray 2-2691
CISION PRODUCTS COMPANY

1135 MISSION STREET, SOUTH PASADENA, CALIFORNIA

Southeastern Distributor: Pond-Johnston Inc. Warehouses in Mobile, Ala.; Jacksonville, Fla. Western States Distributor: Teeco Products, Inc., 3920 West Burbank Blvd., Burbank, California

The DVP Roofing Torch

The DVP roofing torch has field proven itself to be far superior to anything available. This torch gives you years of trouble-free operation with practically no maintenance.

Here's some of the exclusive advantages:

(1) A complete range of heat with the turn of a valve.

(2) Complete vaporization of the liquid propane makes this torch 25% more efficient than any other.

(3) The swirling action of the

flame heats all sides of the kettle.

(4) As a safety factor this DVP torch can use a slug check adapter successfully and will not trap liquid because it must be shut off at the cylinder.

Delaware Valley Propane Company

MERCHANTVILLE 10, NEW JERSEY

New products



retarded by the introduction of "corsinite" to the ice melting compound (GEC-500). Revere Chemical Corp.



Gas fired wall heater simulates a baseboard

Circle 20 on Readers' Service Card

A direct vent gas-fired wall heater has been designed to fit as a "baseboard." The heater is only 14 in. tall and 6 in. thick. The 14,000 Btu heater is 62 in. long and the 8000 model is 44 in. long. The heaters can be installed under low picture windows (GEC-420). Vacuum Gas Burner Co.



"Epicure" is added to Charm line of gas ranges

Circle 21 on Readers' Service Card

The Charm "Epicure," 40-in. console type gas range, is tailored specifically for the medium-price market. The range (GEC 420) features a four-hour timer alarm, meat and baking ovens with modernly designed porcelain enamel doors, oven rotisserie, among other features. Geo. D. Roper.

FOR FREE INFORMATION

or to get the Trade Literature offered . . .

use these time-saving READERS' SERVICE CARDS

Your inquiries electronically processed

by UNIVAL

for high speed service to you Each New Product or Trade Literature item reviewed in this issue is numbered. To get more information about items that interest you, circle the corresponding number on the Readers' Service Card, then PRINT your name, title, company and address PLAINLY and drop the card in the mails. No postage is needed.

FIRST CLASS PERMIT NO. 36 Philadelphia, Pa.

BUSINESS REPLY MAIL
No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

BUTANE-PROPANE Readers' Service Dept.

c/o UNIVERSITY OF PENNSYLVANIA
THE COMPUTER CENTER
P.O. BOX 8211
PHILADELPHIA I, PENNSYLVANIA

USE THESE POSTAGE FREE POST CARDS

BUTANE-PROPANE READERS' SERVICE DEPARTMENT

Please send me further information about the items circled below...

1 3 13 20 21 23 31 32 33 34 35 36 37 38 39 49 51 55 45 48 50 52 53 54 58 59 60 61 62 63 64 65

. PLEASE PRINT

NAME ______TITLE___

COMPANY____

ADDRESS______ CITY & STATE_____

October, 1961

Void after 90 days

UNIVAC SERVICE
Electronic Processing of Inquiries

U Electron

Circle the Item

Number and

PRINT plainly

FOR FREE INFORMATION

about New Products in this issue . . . or to get the Trade Literature offered.

use these time-saving READERS' SERVICE CARDS

Each New Product or Trade Literature item reviewed in this issue is numbered. To get more information about items that interest you, circle the corresponding number on the Readers' Service Card, then PRINT your name, title, company and address PLAINLY and drop the card in the mails. No postage is needed.

Your inquiries electronically processed

by UNIVAL for high speed

service to you

READERS' SERVICE DEPARTMENT

Please send me further information about the items circled below...

9 10 15 16 17 18 19 20 21 22 23 24 25 29 30 31 32 33 34 35 36 37 38 39 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68

. PLEASE PRINT

NAME

COMPANY

ADDRESS_

October, 1961 Void after 90 days

> FIRST CLASS PERMIT NO. 36 Philadelphia, Pa.

BUSINESS REPLY MAIL

No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

BUTANE-PROPANE

Readers' Service Dept.

c/o UNIVERSITY OF PENNSYLVANIA THE COMPUTER CENTER P.O. BOX 8211 PHILADELPHIA I, PENNSYLVANIA

USE THESE POSTAGE FREE POST CARDS

lectronic Processing

UNIVAC SERVICE

of Inquiries

Circle the Item Number and **PRINT** plainly

New products



Plastic clearance lamp has water-tight lens

Circle 22 on Readers' Service Card

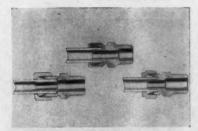
This "Starline" model F-6 plastic clearance lamp has water-tight lens. The internal parts consist of a brass socket and a beryllium copper bulb contact return. The brass and copper parts, inside a plastic housing, assure excellent corrosion resistance (GEC 790). Warren Manufacturing Co.



Plug valve offers better sealing, less wear

Circle 23 on Readers' Service Card

An improved non-lubricated plugtype valve provides a bubble-tight seal at upstream and downstream ports with a body bleed for positive checking of the seal. The twin seal model "C" includes an enclosed packing gland, roller bearings, and fewer parts (GEC 320). General Valve Co.



Low and high pressure couplings come in 3 sizes

Circle 24 on Readers' Service Card

This new line of brass fittings is designed for fast, easy, pressure-tight coupling of plastic tubing

IS THIS YOUR PROBLEM?

"Will advertising in my community actually bring me any additional business? If so, what medium should I use?"

"Advertising can be one of your most potent weapons for increasing profits - but only if you use it correctly, recognizing both its strengths and its weaknesses."

(FROM THE UTN SHIRTSLEEVES SERIES*---VOL. 1)

Every businessman who offers a product or service to the public for sale is persistently plagued with several questions regarding the nevernever land of advertising, and LP-gas distributor-dealers are no exception. They need specific, understandable answers to specific questions before committing the expense involved.

Can I afford to advertise? How much should I spend on advertising? Should I advertise whether my competitors do or not? What should I say in my advertising? Which advertising media are best for my business? Are there any REAL answers to such questions?

Yes, there ARE specific answers, taken from the pages of practical experience and profitable application. But first, - what are you selling?

You are selling products and services that immediately and directly affect your customers' health, safety, welfare, comfort, convenience and pleasure - so you're dealing with them on the most personal levels you could find.

Therefore, your advertising should reflect in every way your complete awareness of this personal side of your business. Your public will look to you with more, or less, confidence, trust and respect - only as your service and your communications reflect your personality, your integrity in the community.

This means, in advertising, to take a close look at what you say to the public, bow you say it - and what media you use. Simply stated, selecting the "best" medium for each individual depends on (1) the aggressiveness and helpfulness of the medium itself; (2) on selecting a medium wherein the advertiser can afford to expose his message consistently, over a period of time; (3) recognizing what the medium can be expected to do—and what it can NOT be expected to do.

* (To aid its dealers and friends, Union Texas Natural has pre-pared a special booklet — "The Use of Local Advertising in the LP-Gas Business" — and a copy is yours free of charge or obligation. Write today, or ask your UTN sales representative.)





UNION TEXAS NATURAL GAS CORPORATION

Keep Up with L. P. gas Developments Each Month	BUTANE	PROPANE
by subscribin	g to	News
198 SOUTH ALVARADO STREET,	LOS ANGELES 57.	ALIFORNIA
☐ Check herewith ☐ Bill me	☐ I year \$2.00	2 years \$3.00
Name	Title	
Firm		
Street		
City	oneState	

New products

without the use of special tools. Both low pressure and high pressure couplings are available, in three sizes, for polyethylene and similar plastic tubing (GEC-370). Spanco Brass Co.

Calibration device eliminates heating entire oven

Circle 25 on Readers' Service Card

A portable calibration device allows eight-minute calibration of gas thermostats right on the range. It is specially designed for appli-



ance dealers and servicemen and eliminates the need for heating the entire oven (GEC-540). Gas Consumers Service.



New pump/motor gives greater system efficiency

Circle 26 on Readers' Service Card

A new combination or universal pump/motor is now available for Ardmore hydraulic drive systems. An important feature of the new pump is its reversibility, using drive shaft, mechanical seal and foot mount assembly, positioned by the user at either end of the unit. The pump gives greater system efficiency, easier installation and simplified maintenance (GEC-660). Ardmore Products.



Gas burner line has three different types of controls

Circle 27 on Readers' Service Card

This line of plate type upshot gas burners produces increased Btu capacity with a delivery range from 50,000 to 1,000,000 Btu. Three types of controls are available: standing pilot, constant or intermittent electronic (GEC 080). Barber Manufacturing.



New infra-red chick brooder less expensive to operate

Circle 28 on Readers' Service Card

This gas-fired, infra-red chick brooder is said to be less costly and



When it comes to bottles, let's quit foolin' and start fillin' with a pump that can take the gaff and keep coming back for more. Blackmer's brand-new MLG series, a pump-and-motor "package", can save you time and money from the moment you unpack it. Installation is a breeze. No shaft coupling to adjust, no bulky base plate to mount. Comes with built-in safety valve and hydrostatic relief... you don't buy them separately and pay to pipe them in. Save on electrical hookup, too, because the three smaller sizes are complete with motor switch and overload protection. Available in 7 models with 34 to 3 hp motors (fan-cooled for continuous duty, of course). Rates to 30 g.p.m. Write for Bulletin 500-2e.

"liquid materials handling" equipment

BLACKMER / liquefied gas pumps

BLACKMER PUMP COMPANY, GRAND RAPIDS 9, MICHIGAN
Find your Blackmer Man under "Pumpo" in the Yellow Pages

easier to operate than conventional poultry heaters. Included is a temperature-controlling thermostat and a pilot light which fires the two infra-red mats (GEC 001). Cargill-Nutrena.

FREE LITERATURE

Gas manifold described

Circle 29 on Readers' Service Card

A comprehensive 12-page catalog describing a complete line of industrial gas manifolds is now available. Included in this catalog are 21 stationary manifolds designed for use with propane, butane and other industrial gases. The manifolds range from automatic change-over types that can accommodate unlimited numbers of cylinders to ready-to-install manual change-over types (GEC-260). Linde Co.

Apparatus booklet available

Circle 30 on Readers' Service Card

Kinetic theory apparatus for classroom and other demonstration and experimental use is fully described in a 20-page illustrated booklet. The apparatus permits the demonstration of the most fundamental principles of gas mechanics (GEC-450). Cenco Instruments Corp.

40-page regulators catalog

Circle 31 on Readers' Service Card

A new 40-page catalog on regulators for the accurate control of industrial gases in all applications has been issued. The catalog covers the widest choice of gas precision regulators available. It also includes information on accessory equipment available with the various regulators (GEC-700). Air Reduction Sales Co.

Pool heating system booklet

Circle 32 on Readers' Service Card

Dimensions and weights of a new indirect pool heating system are covered in a new bulletin. A selection chart is also included, which shows models needed for various pool sizes based on temperature requirements (GEC 860). Hydrotherm, Inc.





Sell 600 lbs. LP-gas/year

Automatic LP Gas
STOCK TANK HEATER

You sell more than an automatic stock tank heater when you sell Johnson. You sell an average of 600 lbs. of LP-Gas per heater per year. The dependable, weather-proof Johnson Stock Tank Heater is easy to sell, too.

Cattlemen and dairymen know their stock do better, profit more, when their water is at a drinkable 48°. And the Johnson Stock Tank Heater maintains that temperature in the coldest weather. It's safe, efficient and very easy to install. Profit twice with the Johnson Stock Tank Heater.





PEOPLE

S. E. SWEET—from general manager of refrigeration division of Whirlpool Corp., St. Joseph, Mich., to director of merchandising. H. THOMAS STROOP succeeds Sweet, from sales manager. ROBERT L. BRINTNALL—from general manager of ranges to general manager of laundry

products; PAUL F. ARMBRUSTER, formerly southwestern regional manager, succeeds Brintnall.

ROLAND R. SPEERS was recently elected secretary of Suburban Gas, Pomona, Calif. He is also legal counsel for the firm.

VERNE O. KYLE died unexpectedly August 2nd following an emergency operation in Murray, Ky. Kyle was general manager of the Tappan Co.'s Murray plant.

LEROY F. HARLING has been appointed sales promotion manager for Harper-Wyman Co., Chicago. He will give lectures throughout the country on gas cooking.

LEONARD M. HAMMER—from manager of the Gold Star Gas Appliance Program of Hardwick Stove Co., Cleveland, Tenn., to sales promotion manager of the firm.

ALLAN ANDERSON—from sales, service and promotional capacities of Hamilton Manufacturing Co.'s Laundry Appliance Division, Two Rivers, Wis., to southeastern regional representative.

ERNEST M. TEICHERT and CLARENCE WANTZ have been appointed assistants to the general manager of Robertshaw-Fulton's Robertshaw Thermostat Division, Richmond, Va. WILLIAM CARLE OLMER succeeds Teichert as shop superintendent, while CHARLES D. BRANSON succeeds Wantz as chief engineer. John J. GARDNER—from process engineer to manager of manufacturing engineering.



Charles P. Magee, general manager of Home Gas Co., Tylertown, Miss., is delighted to hear from R. H. Norris, president of Dearborn Co., that he has just won a 17-ft Lone Star Vacationer cabin cruiser in a drawing conducted by Dearborn Stove Co. of Dallas. Thousands of Dearborn dealers all across the country took part in the drawing.



Its "GJ-BOSS" for Safety!

"GJ-BOSS" GROUND JOINT FEMALE COUPLING, STYLE X-34. Unequalled for strength, durability and safety on hose handling L-P Gas at bulk plants, on carloading rigs and other installations. All parts steel or malleable iron, thoroughly rustproofed. Furnished with superstrong "Boss" Offset and Interlocking Clamps. Ground-joint union between stem and spud forms washerless, leakproof seal. Sizes ½4 " to 6", inclusive. Also available in washer type, Style W-16 and companion "Boss" Male Coupling, Style MX-16. Stocked by Manufacturers and Distributors of Industrial Rubber Products.

DIXON Valve & Coupling Co.

GENERAL OFFICES & FACTORY PHILADELPHIA 22, PA. BRANCHES CHICAGO
BIRMINGHAM + LOS ANGELES + HOUSTON + DIXON VALVE & COUPLING CO., LTD., TORONTO
ASSOCIATE COMPANIES. BUCK IRON COMPANY INC. QUARRY VALLE FA - PARCESSON DEADN STEEL COMPANY CAMBON N.











Left to right: Tanner, Lux, Robertshaw-Fulton: Adamson, Grove Valve: LeGere, Motorola. Inc.: Pohlig, Janitrol.

ARTHUR E. B. TANNER-from Lux president to managing director of the Lux Time Division, Robertshaw-Fulton Controls Co., Richmond, Va. PAUL A. Lux has been appointed general manager of Lux Time Division, with headquarters at the main plant in Waterbury, Conn. EUGENE T. CRAN-DALL has been appointed general industrial sales manager, and JAMES M.C. TIGHE, general commercial sales manager of the same division. FRED Lux, JR., has been appointed general manager of Lux in Canada; EDWARD A. Koss, general manager in Tennessee; and WILLIAM F. CAHILL, controller and assistant secretary.

KENNETH S. ADAMSON, formerly with Pre-Flite division of Avco Corp., has joined Grove Valve and Regulator Co., Oakland, Calif., as application engineer.

FRANK C. LEGERE—from Boston area sales manager of Motorola Inc., Chicago, to regional sales manager in New York State.

H. A. Pohlig has been appointed sales representative for Janitrol Heating and Air Conditioning Division, Midland-Ross Corp., Columbus. He will cover the Virginia area.

FRANK HACH, JR., formerly with Lincoln Electric, recently joined Harris Calorific Co., Cleveland, as chief industrial engineer. ALFRED E. BURNELL, formerly with K-G Division of Air Products of Allentown, Pa., and JOSEPH J. OKLADEK, formerly with Canadian Liquid Air, joined Harris as product engineers.

GORDON REYNOLDS, formerly with Sacramento Municipal Utility District, Calif., has joined California Liquid Gas Corp., Sacramento, as fuel assistant in wholesale marketing.

ALONZO B. KNIGHT — from vice president Borg-Warner International, to president. CLAUDB W. MASON — from secretary-treasurer of Mechanics Universal Joint Division of Borg-Warner Corp., Chicago, to vice president and assistant general man-

ager; FRANK J. HOYNE—from general sales manager to vice president of sales; Roy McCaslin, Jr.—from assistant controller to secretary-

treasurer. James Peterson, formerly with Cooper-Bessemer Corp., joined Borg-Warner as assistant general sales manager.





Morristown, N. J.

*TM-Suburban Appliance Co.



One train load one million gals.

The rumble of a freight train passing through El Paso doesn't usually attract much attention, but one that came through town August 4 on the Santa Fe tracks caused quite a stir in the offices of El Paso Natural Gas Co.'s natural gas liquids department.

It was special because it carried 1 million gallons of propane—loaded in 100 tank cars and bound for delivery to Petroleos Mexicanos in Mexico City.

"This is the largest single shipment to one destination this department has ever sent out on one train," George Hewitt, department manager, said. Although the company has been selling about one million gallons of propane and butane to other dealers in Mexico every month for the past few years, this is the first shipment ordered by Pemex. All of the propane in this shipment will be used for heating in the Mexico City region, Hewitt said.

The tank cars were loaded at Wingate Fractionating Plant near Gallup, New Mexico. The order was so large it took the plant more than three full days to produce the amount of propane needed to fill the cars.

The company has made large sales of liquid products before, but not as large an amount as was contained in this one shipment. Tank cars used for shipping liquid products are leased by El Paso Natural from the Union Tank Car Co.

As soon as the tankers are unloaded in Mexico City, they will be returned to Wingate for reloading so additional deliveries of propane can be made to Pemex. The Pipeliner, El Paso, Natural Gas Co., Aug. 1961.

CORRECTION

In the September issue of BPN, Power section, page 75, a sentence read, "Fuel consumption varies from ½ to 1% gal. per mile." It should have read "... per hour."

Dept. BP-1061



New Mexico LPGA elects new officers in Albuquerque

The New Mexico LPGA recently elected new officers at its annual convention in Albuquerque. They are: president, Charles A. Nicholson, Belen; vice president, Glenn Bobbitt, Carlsbad; and secretary-treasurer, C. H. Lodal, Albuquerque.

Elected to the board of directors were: Jess Keeth of Lovington, Denzel Davis of Roswell, Finis T. Curnutt of Tucumcari, and Dick McCowen of Las Cruces. R. E. Goss of Farmington and John R. Peryatel of Raton were re-elected.

Indiana LPGA sponsors servicemen's training course

The Indiana LPGA is sponsoring an LPG servicemen's training course, which will be coordinated by the Indiana vocational education department, and taught by trained public school teachers in local educational facilities. Materials and subject matter were developed under the direction of the education committee of LPGA.

The schools will be supervised locally by a director of the Indiana LPGA. They will be held Sept. 15 to Dec. 1, 1961; March to June, 1962; and October to November, 1962.

CNGA elects Boykin as president

California Natural Gasoline Association recently announced the appointment of Robert Boykin, staff engineer of Humble Oil and Refining Co., as president. T. S. Zajac, manager of natural gas and gasoline department, Shell Oil Co., was elected vice president. New directors are: R. L. Cook, Signal Oil & Gas Co.; M. S. Hubbell, Lemita Gasoline Co.; James McDonald, Tidewater Oil Co.; C. M. Sandland, C. F. Braun & Co.; L. F. Strader, Richfield Oil Corp.; and Lee Van Horn, The Fluor Corp., Ltd.



R. F. Flavelle was recently appointed secretary-manager of the Western Canada LPGA district. Until recently he was vice-president and secretary of Stewart Petroleum Ltd., Calgary, Alberta.

His office headquarters will be located in Calgary.

T. J. Williams, manager of marketing administration services at Janitrol Heating and Air Conditioning Co., Columbus, Ohio, has been named chairman of the marketing research board of Gas Appliance Manufacturers Association.

R. P. Atwood recently passed away in Oakville, Ontario. Mr. Atwood was secretary-manager of the Eastern Canada LPGA.

DO YOU REALLY HAVE THE BEST CYLINDER BUY?

Are your cylinders:

- (1) Girth welded for greater safety and security, smarter appearance, longer service?
- (2) Galvanized on the footring and part of the bottom cup for maximum resistance to corrosion?
- (3) Equipped with curled handholds for easier handling, greater customer satisfaction?
- (4) Completely welded at the footring to prevent moisture seepage, retard rust and corrosion?
- (5) Made of the finest low-alloy, high strength steel for tough service?
- (6) Lighter in weight for easier handling, simplified filling, less costly shipping?

 (7) "Normalized" to remove harmful stress.
- (7) "Normalized" to remove harmful stresses rather than heat treated as done by most manufacturers?
- (8) Double painted for longer life, reduced maintenance?
- (9) Inspected at every step and finally pressure tested at twice the strength demanded by actual service?
- (10) Made with extra thick bottoms and foot-

tt not—for the really best cylinder buy write:

CYLINDERS INC. DEPT. 810

1200 West Blancke St. Linden, New Jersey



Cylindess, Inc. Successors to the propuse and satisperant cylinder manufacturing business of Lander Company, Division of Union Carbide Corporation.



EASY INSTALLATION AND TROUBLE-FREE OPERATION MEAN MORE PROFIT TO YOU with ROYAL WALL HEATERS



Quality Since 1891

Every quality feature for Fastest, Economical Installation and Silent, Service-free Operation is built into Royal Wall Heaters—success proven in thousands of installations. You should compare Design, Construction and Price. No finer wall heaters than Royal are made.

Recessed Vented

8 Models — 25 thru 62,000 BTU Single and
Dual-Wall models. 20 year warranty on porcelainized, die-formed combustion chamber.
One-piece front and Rustproof inner unit
with separate header are your key to easier
installation and longer life. Optional furnace-





ed Combustion Chamber





For all details, write — Model DYK-10

CHATTANOOGA ROYAL COMPANY • CHATTANOOGA & TENNESSEE





Gas load to break records

THE GAS INDUSTRY WILL BE SERVING 34 PER CENT MORE CUS-TOMERS and ringing up 114 per cent more sales revenue by 1970, it was predicted in an interim report made in late August to the Gas Appliance Manufacturers Association's 582 members.

Signs of a record-shattering decade for the industry already are evident in the field of residential, commercial and industrial gas air conditioning, said William G. Hamilton, Jr., presi-

Hamilton also pointed out that gas is the nation's No. 1 heating fuel, having accounted for nearly 25 per cent of the 92.9 billion therms of utility gas sold in

The number of residential gas heating and cooling customers of the utilities alone will increase 65 per cent by 1970, and similar progress is likely in markets served by LPG.

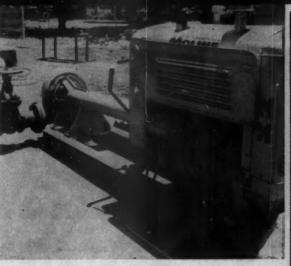
The GAMA official gave the following reasons for his belief that the 925,000 miles of gas mains and pipelines projected by 1970 will be kept busy:

Development of gas ranges for "programmed" cooking; further "compacting" of all residential gas equipment, such as furnaces, boilers, ranges and water heaters and the combining of clothes washers and dryers into single dual-purpose units; adoption of smokeless-odorless gas disposers as standard home equipment to eliminate garbage and trash disposal problems for householders: use of various adaptations of the Schwank radiant burner to revolutionize the operation of gas home appliances, make outdoor heating practical and improve industrial processing equipment.

Frederic O. Hess, president of the Selas Corp. of America, Dresher, Pa., and former GAMA president, said the future of industrial gas usage is being governed by inescapable trends toward better materials, the need for higher yields or greater efficiency, and five-day-week industrial operation.



GALLONAGE MOUNTS UP FAST when you have a single customer using LPG in all these devices—and many more. At left above, this all-purpose vehicle not only runs on LPG but also supplies about 1220 gal. per day to a battery of 12 sprayers during the four months of spraying season. (It also goes out on an occasional hunting trip to fuel a stove, portable kitchen, and gas-



lights.) THE LPG-POWERED ENGINE (right) operates an irrigation pump using from 3 to 8 gal. per hour. JEEPS (below) are the all-purpose workhorses in large-acreage growing operations, so they are excellent loads in themselves. ANOTHER ALL-AROUND VEHICLE is the Ranchero (at bottom), which has a dual-fuel setup. Around the graves, it's always on LPG.

In Florida's groves, one customer equals 70,000 gal per year

HARRY J. MILLER

INSTEAD OF DIPPING A HESITANT TOE into the business of selling LPG as a carburetion fuel, Growers L.P. Gas of Auburndale, Fla. jumped in with both feet 5 years ago. It has since chalked up a volume of 2 million gallons in annual sales, and 95 per cent of it is in carburetion.

Says the company's President Fred Hutchinson: "We started in carburetion right away, and during our first three years, we turned away all other gas business."

Auburndale is in the heart of Florida's vast citrus belt, and Growers specializes in selling conversions to the area's citrus and agricultural industries. Because Hutchinson had been selling Case units and was thoroughly sold on LPG as a power fuel, he felt he could wean customers away from gasoline and other fuels—providing he could prove the superiority of gas.

Hutchinson, no stranger to this kind of challenge, "showed" them.

"I pointed out that LPG is a high-octane fuel, the highest quality fuel at the lowest possible cost octanewise," said the dealer. "It was plain to me that the farmers and citrus growers who were using tractors

A BPN Exclusive







SERVICE

"... we were experimenting with two identical lift trucks, one on LP, the other on regular gasoline. We needed help on the proper type of LP conversion and how to maintain and operate the equipment for best results. The authorized Century Distributor delivered the goods with on-the-spat help."

PARTS

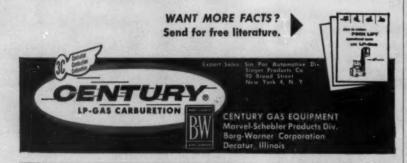
"...we soon learned that the extensive Century national distributor set-up for service and parts was to be of tremendous help. The local Century Distributor carries a complete stock of all parts necessary to keep us in continuous operation, And the quality of personnel proved to be a time saver too."

EDUCATION

"...the local Century distributor has complete facilities for educating our operators and other plant personnel on the care and operation of our LP vehicles. They have regular schoolclinics with demonstrations and instructive literature."

APPROVED EQUIPMENT

"...once again Century scored with us. Not only does their exclusive fuel metering valve carburetor provide easy starting and smooth idling but we found the equipment FACTORY MUTUAL APPROVED."



SHEET LINES C



REPAIR YOUR OLD NOZZLE

Parts and adaptors are in stock

For information ask

PARKHILL-WADE

475 Huntington Drive, San Marino, Calif.

Power



Most of Growers' loads are conventional power applications, but not all. Shown above is a "Gas-Cool" air conditioning installation that operates on LPG. Below is a sprayer, used to eliminate cabbage plants in water on a large grower's property.



powered by conventional tractor fuel were making a costly error.

"Such fuel had a low octane value and low compression ratios. I knew I could take an LPG-equipped tractor to a doubting customer and cut 5 acres of ground a day more than he could with his best driver and non-gas tractor."

Accordingly, the Hutchinson firm outfitted its own tractor to prove the superiority of LPG operation, and began a series of demonstrations that made the farmers sit up and take notice.

"We could outpull their tractors without any trouble," says Hutchinson. "Once we 'showed 'em,' sales resistance melted away."

Once the firm sold the grower on a conversion for his tractor. it went after every internal combustion engine he owned. "Our sales pitch was predicated on the idea that the average agriculturist was tied down to using three fuels -gasoline, diesel, and tractor fuel (LPG).

"We pointed out the waste of time and labor this required, when one kind - LPG - would do the work of all three and do it better and more economically."

For example, citrus growers use spraying machines, supply vehicles such as the trucks that move in and around the vast citrus acreages. and Jeeps or similar vehicles, which are universal workhorses on every spread. To keep such machines in continuous action (as during the hectic four months' spraying season when they work 12 and more hours a day and are left out in the fields overnight) requires that

15,000 miles between oil changes

On top of a book case in Auto Maintenance Garage office there's a box full of small bottles of used crankcase oil. Each is labeled. One reads: "No. 85 A-C fork truck. Total hours, 1543. Installed 5-10-60. Removed 11-10-60."

The bottles are one of the keys to the company's effective preventive maintenance program for its more than 400 trucks. trailers, tractors, fork trucks, scooters, railroad equipment and automobiles used at West Allis Works.

The engine on No. 85 A-C fork truck had the equivalent of about 15,000 miles on it between oil changes. Of course, this was possible only because No. 85 had a liquefied petroleum gas engine.

A sample of the engine oil was sent to the oil company for analysis. A report showed that the oil's lubricating properties were still satisfactory. A-C Views, Allis-Chalmers Manufacturing Co., Aug. 1961.

the grower keep supply trucks racing back to the shop to bring up fresh fuel supplies.

Hutchinson's sales spiel was directed at the idea of having one single fuel to operate every piece of equipment.

"We pointed out that with LPG running all of his field units, he could install a sufficiently large tank on his supply truck to cut out many needless trips to replenish their fuel needs."

A problem that Hutchinson has turned to his advantage in making

details or see your local

ALGAS MET-R-FLO

No

Address

American Liquid Gas Corp . 1109 Santa Fe Ave., Los Angeles, Calif.

Pioneer of the LP-Gas Industry

representative for

a product of . . .

sales is the prevalence of pilferage in the groves. Citrus workers in in the area are low-paid and irresponsible. At the end of a working day, they habitually leave their machines in the distant fields, or in the roads between the groves, and it is a simple matter for them to steal back and siphon off gasoline for their own jalopies.

With LPG, their thievery is stymied.

Conversions run about \$325 for a supply truck, including an 80-gal tank. Whenever possible, the job



DON'T RAISE THAT COMPRESSION! . . . install an ELLIS (extra cold) MANIFOLD



Leading LPG engineers are sold on the merits of Ellis Bu-Power (Extra Cold) Manifolds. These manifolds give high-compression performance with row-compression reliability. Head gasket, ring and bearing troubles are minimized.

Get the most out of your LP truck with an Ellis Dualexhaust Manifold. This latest addition to the Ellis line has proven far superior to the so-called improved 3½ x 4 exhaust systems in test after test under actual road conditions.

By lowering combustion chamber temeperatures and reducing back pressure, Ellis Dualexhaust increases horsepower. Used with the Bu-Power Manifold, it gives your truck power that equals gasoline horsepower. This is possible only with an Ellis Manifold.

ELLIS MANIFOLD CO. | Angelus 3134 East Washington Blvd.

Les Angeles 23, California

24142



The home of Growers L.P. Gas Service, which advertises itself as "carburetion and industrial specialist exclusively." For five years. Growers has concentrated on these loads; today, they account for 95 per cent of its gallonage.

Power

is brought into Growers' Auburndale shops. When it comes to machinery such as a mammoth combine or a seed harvesting outfit, Grower's mechanics make the conversion right at the customer's spread.

For example, a flatbed truck that hauls liquid spray materials works with the speed sprayers. As the spraying machine runs low on fuel. the nurse unit, which is equipped with a small LPG-driven pump operating off a vapor line, pulls up alongside the sprayer and refuels it without interrupting the work

"Our greatest problem when we first went after gas carburetion is still with us," declares Hutchinson. "It's the attitude of the mechanics.

"If we can't live with a customer's mechanic long enough to teach him the correct practices in maintaining his conversion, then we're in trouble. LPG gets blamed for everything that happens around a vehicle, even a flat tire. We get some ridiculous trouble calls.

"When a gasoline engine breaks down, even a shadetree mechanic will take a stab at shooting the trouble. But if its an LPG engine, they're on the phone at once demanding that someone come out and show them how to fix it. Even if it's only a minor job, such as a sparkplug or a clogged air cleaner, the mechanics, especially the older fellows who grew up with gasoline, will at once throw up their hands in frustration."

However, 90 per cent of the firm's service calls arise from ignition, not from carburetion.

Since its the firm's aim to build up its gas load, Hutchinson prefers getting factory conversions for his customers. He guarantees all conversions for six months.

To combat the service problem, since call-backs can be a costly headache, Hutchinson invites his



The low pressure valve seats with the direction of gas flow, will not blow open easily or "burp" with a slight pressure rise.

All of the larger J & S Regulators save up this gas when you slow down or stop, simply by allowing primary regulator pressure to double.

Actual laboratory tests and road tests demonstrate the surprising amount of gas which is saved.

Amazing new frictionless plastic parts give longer life. Big diaphrams permit sensitive pressure control.

For more information on this J & 5 engineering feature, ask for the August, 1961 newsletter.

CARBURETOR COMPANY O. Box 10391 . DALLAS 7, TEXAS . Phone Riverside 2-587





Manager Ralph Weeks (left) and President Fred Hutchinson (center) discuss the advantages of a full conversion program with the owner of a large citrus spread. Once they have him sold on using LPG in his tractors, the other loads usually follow.

customers to send their mechanics to him for instruction in maintaining LPG components. The mechanics come during their regular working hours, and are paid by their employers.

"The employers don't mind paying their men to receive this instruction," says Hutchinson, "because breakdowns in the field cost money, and good mechanics have long been in short supply here."

Hutchinson observes that his firm has its greatest success teaching younger mechanics. The older ones are slower to change their thinking—from gasoline to LPG.

Growers' Manager Ralph Weeks continually beats the bushes for more gas carburetion business. His habit is to haunt the barns in the area to see if they contain any equipment that could be converted.

Says Weeks: "By talking to the superintendent of a spread and the mechanics, you soon learn what kind of problems they're having with their equipment. We get many of our leads that way."

Growers is ever on the alert to pioneer new equipment that its citrus planters and farmers can use to advantage with the aid of LPG. The firm found a ready sale of portable weed burners to a large citrus processor troubled with growth of cabbage palms in the

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

bodies of water on its acreage.

Another market is the abatement of flies that breed in manure in the area's farming districts. While they can be destroyed by spraying with chemical killers, the chemicals make the manure smell even worse than it normally would. On the other hand, an LPG flame—in a burner that Hutchinson sells for \$54—kills the larvae and dries the

manure, all without offensive odors.

Hutchinson suggests that the gas dealer contemplating aggressive merchandising of gas carburetion has at his command an infinite variety of literature carrying proven sales arguments. He warns that once a dealer has gotten a foot in the door by selling an initial carburetion installation, he must recognize the importance of rendering every service possible to keep the customer satisfied. He says: "Until the customer has learned to take care of his LPG equipment, you can't kick when your men are called out to do a job that could have been ably enough handled by his own mechanics. It's a fact of life the carburetion dealer has to live with. You've got to accept it and go on from there."

Having had such great success with carburetion, Hutchinson is now broadening his scope and looking for new types of customers.

"We've built up a good summer load," he says. "Now we're going after industrial and domestic consumers to expand both our summer and winter volume."





CLASSIFIED Advertising

All Classified Advertising payable with order. No agency commission or eash discount on classified advertising. Copy must reach publisher's office prior to the let of the month preceding publication. Address: Classified Advertising Materials, BUTANE - PROPANE News, 198 S. Alvarado Street, Los Angeles 57, Calif.

DISPLAY CLASSIFIED

\$12.00 a column inch per issue. Choice of 18, 14, 12, 10 pt. display type for headings. Set with 1 pt. border. Maximum ad size 3". No cuts permitted. Publisher will set ad for maximum effect in space purchased.

UNDISPLAYED CLASSIFIED 15t a word Set in 6 pt. type without border. \$6,00 minimum charge per insertion. If Blind Box number care of B-P News is used, count as five words.

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

When full payment is made in advance for four consecutive insertions of undisplay classified ads a 10% discount is allowed.

SITUATIONS WANTED

EXCEPTIONAL PROPANE SALESMAN, 30, not afraid to work, college background. Presently employed by large Midwestern gas company. Capable of controlling sales department and promoting new business. Prefer Southern States area. Reply Box 37, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

HELP WANTED

UNUSUAL OPPORTUNITY—SALES COR-RESPONDENT. Growing manufacturing firm in northeast area interested in alert, ambitious sales correspondent, knowledgeable in LP field. Opportunity for growth with company. Should have background in sales and customer contact. All inquiries confidential. Send complete resume and salary requirements to Box 30, BU-TANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

FAST GROWING LP GAS COMPANY has management openings in small retail plants in Pacific Northwest. If you are ambitious and looking for more apportunity write Box 35, BUTANE-PROPANE News, 198 So. Alvado St., Los Angeles ST, Calif., giving a resume of your past experience and education. Your replies will be held in strictest confidence.

BUSINESS OPPORTUNITIES WANTED

WE ARE INTERESTED IN ACQUIRING LP Gas businesses anywhere in the Central United States. If your business is for sale, write to Super Propane Corporation, Box 392, Lebanon, Missouri.

WANTED TO PURCHASE: RETAIL L. P. Gas Business located in Northern California or Washington or Oregon. Barstow Liquid Gas, Inc., 1530 W. Main St., Barstow, Calif.

INDEPENDENT GROUP WITH STRONG financial and supply connections is expanding into LPG business in Midwest and North Central United States and interested in purchasing established marketing companies. Must have good profit record and operating management.

Interested owners will be given references and further information. All replies held in strictest confidence to

Box 38, BUTANE-PROPANE News 198 So. Alvarado St., Les Angeles 57, Calif.

HOW TO FIND A BUYER

You can do it quickly, inexpensively with a classified ad in BUTANE-PROPANE NEWS.

BUSINESS OPPORTUNITIES OFFERED

LPG BULK PLANTS. WE SPECIALIZE in selling petroleum properties throughout Midwest. Have number desirable plants for sale. OLE BRODD, PETROLEUM MARKETERS, 605 Produce Bank Bidg., Minneapolis, Minnesota.

BUS. OPP. OFF .- Cont.

PROPANE DISTRIBUTORSHIPS AVAILable in Idaho, Oregon, Nevada, Washington. Prefer all around experienced gas men who are acquainted in the area in which they wish to locate. Some capital desired. Western Propane, Inc., 7915 S. W. 83 Ave., Portland 23, Oregon. Attn. Jack Lewis, General Manager.

DISTRIBUTORSHIPS AVAILABLE. Manufacturer of cylinders expanding sales organization. Distributorships available in southeastern states (except Florida), middle Atlantic, Central, Southwest, Mountain and Pacific Coast. Please contact Cylinders, Inc., 2101 South Stiles St., Linden, New Jersey.

IS YOUR GAS BUSINESS FOR SALE? If so, do yourself a favor and contact us before selling. We are interested in purchasing LP gas businesses, in the Central United States, preferably ones with annual gallonages in excess of one million gallons. Write to Box 33, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

LP GAS BUSINESS FOR SALE. 34,000 gallon Propane storage, one delivery unit, one service pick-up. Gross sales \$75,000. One to one ratio. \$30,000 cash will handle. Located in Southeast U. S. Reply Box 34, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles \$7, Calif.

FOR SALE - TRUCKS - TRAILERS

FIVE USED TRAILERS—6850 to 8000 Gal. Capacity—202 steel—extra good tires and mechanical condition—start saving that hauling money—priced from \$5250.00 to \$5995.00. "PAT" & "CHUCK" SUPPLY CO., "The Tradingest Monkeys Anywhere!" Box #15333—Pho. JE 6-2848, Ft. Worth, Texas.

USED PROPANE DELIVERY TRUCKS. 1200 to 2200 W. C. Presently in use and being replaced with larger units. United Petroleum Gas Co., 4820 Excelsior Blvd., Minneapolis 16, Minnesota.

TRANSPORTS FOR SALE: COMPLETE road ready Butler Propane blimp transports, 6600 to 7100 gallon capacity, with or without tractors. Excellent condition, ready to haul gas. Write or call Dixie Gas, Inc., Marks, Mississippi.

RC 162 INTERNATIONAL 1955 1665 WG Single Barrel 60" dia. 200# W.P. Columbian fully skirted, 2 large side cabinets. Dual Electric hose reel with 1" liquid and ½" vapor hose. Print Meter. A real work horse for only \$3,000. TenBrook Sales, Inc., 700 So. Berkley Road. Kokomo, Indiana. Phone GL 9-3141.

USED PROPANE DELIVERY TRUCKS

Several late model twin and single units, 1200 to 2200 W.G., reconditioned and ready for service. Buy now before Fall rush begins, 25% down, balance 24 months. Call or write for description and prices.

PRESTON GRACE
WHITE RIVER DISTRIBUTORS, INC.

Batesville, Ark.

Phone R1-3-2374

FOR SALE-TRUCKS-TRAILERS - Cont.

LP GAS TRANSPORT. INTERNATIONAL, 1956, 190 LP carburetion, air, recently majored, runs and looks real good, Faubian Trailer—5600 WG twin barrel, good rubber, tandem, will sell separately, \$2500 each. Call \$24-7552, Bill Houston, Keokuk, Iowa.

GET SET FOR FALL! TERRIFIC BAR-GAIN in used transport. 6360 w. g. single. Fully reconditioned . . newly sandblasted, reprimed and repainted. Fruehauf chassis. Only \$5,995 and ready to roll! Meets regulations of most states. Write TRINITY STEEL CO., INC. at 4001 Irving Blvd., Dallas 7, Texas. Or phone MEIrose 1-4420.

Or phone MENUSCO.

1958 CHEVROLET WITH TWIN 750 Gal. Propane (U69) tanks, Neptune meter, Viking pump, ready to deliver gas—a real "work hoss"—only \$3795.00. "PAT" & "CHUCK" SUPLY CO., "The Tradingest Monkeys Anywhere!", Box #15333—Pho. JE 6-2848, Ft. Worth, Texas.

BARGAIN HUNTERS! Save on LPG Delivery Costs!

Why lease when you can own for less? Think of it! You can have a modern, lightweight, 1800 WG twin, mounted on a 2-ton truck with high flow plumbing, hose, rear cabinet in one package, on easy Nor-Tex terms, for \$5,860.00. Buy now while they last for only \$586.00 down. Pay the balance in up to 36 easy Nor-Tex monthly payments. Write, wire or phone today!

NORTH TEXAS

Denton, Texas

382-5416

L.P.G. TRUCK TANKS TRADE WITH A TRADER!

NEW . . "Lightweight" Units . . .
Over 50 Units Ready to Go . . .
"Fast-Fle" Plumbing, etc. . . . 1500
. . . 1800 . . . 2000 . . . 2200 . . .
2400 . . . 2600 . . . Single & Twins.
All Makes New Truck Chassis at
FLEET PRICES. SAVE MONEY. 10%
Down . . . 36 Mo. to Pay!

Write-Phone-Preston Grace

WHITE RIVER DISTRIBUTORS Batesville, Ark.—Ph RI-3-2374

We Have USED UNITS Alse!

CLASSIFIED ADVERTISING

FOR SALE-TANKS-CYLINDERS

SPECIAL SALE USED 100 lb. cylinders—retested, repainted and plugged—good as new—ten or more—\$9.95 each, F.O.B., Tulsa, Okla. Can furnish brand new 10% valves and caps for \$3.45 each. "PAT" & "CHUCK" SUPPLY CO, "The Tradingest Monkeys Anywhere!", Box #15333—Pho. JE 6-2848, Ft. Worth, Texas.

USED 1 POUND GOSS No. 930 refillable L. P. Cylinders only. Some with valves as is. Ideal for portable L.P. food warmers, demonstrators, torches, etc. Regular \$9.95. Close out \$2.50. CAMPMASTER A L U M I N U M C O O K STOVE, 2-burner complete with bose, regulator, quick couplers, wind screen. Special \$19.50. 4 POUND CYLINDER with valve for above \$7.50. TRAILER REGULATORS with P. O. L. very special \$2.69. Lowest prices on all L.P. Equipment—immediate delivery. Write for catalogue. Home Gas Equipment Company—Department B8, 1301 Carnegie Ave., Cleveland 15, Ohio.

USED TRAILER TANKS

Propane and Anhydrous Ammonia 6,000-10,000 gals.

USED GASOLINE TANKS

Steel and Aluminum 4,000 to 8,000 gals.

WILL FINANCE

Box 1589 — Lubbock, Texas
CALL PO 2-5261

WANTED-MISCELLANEOUS

WANT TO BUY: 100 Lb. GAS Cyl-light weight. Crouch Philgas Service, Glencoe, Ky.

WANTED: 12,000 to 30,000 GALLON tanks. Give location, manufacturer and year and opening in tank (picture helpful). Also need used 1/4" Neptune Printometers with or without compensator. Reply Box 32, BUTANE PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

WANTED: USED LIQUID PROPANE METERS in operating condition. Quote price. Reply Ideal Gas & Appliance, 14 North 1st, Nyssa, Oregon.

WANTED: USED 40 or 60 lb. ICC cylinders. H. G. Smith Inc., Fremont, Michigan. Phone 443.

WANTED: USED DELIVERY UNITS, meters, pumps, domestic and bulk lanks.

ANYTHING FOR LPG USE!! Write or call and let us know what you want to swap or sell—we will buy outright—trade fittings and supplies—trade any way you want to—here is a chance to clean up that warehouse or storage lot!! "PAT" & "CHUCK" SUPPLY CO., "The Tradingest Monkeys Anywhere!", Box #15333—Pho. JE 6-2848, Pt. Worth, Texas.

WANTED-MISCELL-Contd.

WANTED TO PURCHASE: USED MODEL 30 and model 70 Mitchell vaporizers or state what you have, Dual Gas Inc., Friesland, Wisc.

WANTED TO BUY

Used propane bulk storage tanks from 6,000 to 18,000 gallon water capacity, 200#-250# working pressure. Please give location and asking price in first letter.

Write

Box 36, BUTANE-PROPANE News 198 So. Alvarado St. Les Angeles 57, Calif.

FOR SALE-MISCELLANEOUS

DIXIE SEMI-LOCK HOODS, ALUMINUM and Aluminum coated steel. Wall bracket or free standing. GUARANTEED mechanically for life. \$3.00 up. Dixie Manufacturing Company, Elizabethtown, Kentucky, Box 65. Phone Collect R05-3429.

%" HOSE—350# W.P.—100 feet for only \$59.80. "PAT" & "CHUCK" SUPPLY CO... "The Tradingest Monkeys Anywhere!", Box #15333—Pho. JE 6-2848, Ft. Worth, Texas.

SPECIAL SALE: IMPERIAL 300 carburetors—while they last—\$27.95 ea. "PAT" & "CHUCK" SUPPLY CO., "The Tradingest Monkeys Anywhere!", Box #15333—Pho. JE 6-2848, Ft. Worth, Texas.

DECALS MADE FOR TRUCKS, EQUIP-MENT. Small or large quantities. Catalog free. Mathews Co., 827 S. Harvey, Oak Park, III.

TWO 7 x 7 GARDNER DENVER COM-PRESSORS—400 rpm—Max. pressure 60#. Model R7BH used in Propane-Air plant. Model R7BK new, has never been used. Other equipment from Propane-Air plant available. All priced very reasonably. Maquoketa Gas Company, 109 S. Matteson, Maquoketa, Iowa.

FOR SALE — IMMEDIATE DELIVERY! Eureka Smokehouse Burner Assemblies! For meat smoke houses using bottled gas. Completely automatic. Clean filtered smoke. Distributes heat uniformly. Low gas consumption. Automatic temperature and pilot control. Less product shrinkage. Easily installed. Write for descriptive pamphlet. Eureka Equipment Company, P.O. Box 396, Beloit, Wisconsin.

SERVEL GAS REFRIGERATORS

6 and 8 cu. ft.

Some with cross-top freezers

Used, excellent condition, guaranteed perfect operating order. Low delivery cost from our warehouse nearest to you. Special price for half or full trailer loads. Send for photos and details.

BEACH REFRIGERATOR CO.

196-11 Northern Blvd. Flushing 50, H. Y. Phone: Flushing 7-6161

FOR SALE-MISCELL-Cont.

WHY PAY MORE? BRAND NEW 5 lb. dry chemical fire extinguishers—with brackets—\$21.98. 20 lb. size for \$49.98. "PAT" & "CHUCK" SUPPLY CO., "The Tradingest Monkeys Anywherel", Box \$215333—Pho. JE 6-2848, Ft. Worth, Texas.

SERVEL REFRIGERATORS

4 & 6 cu. ft.—U-type Evaporator 6-7-8 cu. ft. Cross-top Freezer Used But Not Abused Cieco-Guaranteed—Lew Cost Shipping

FRED A. BROWN CO. 170 W. Cumberland St., Phila. 33, Fa. Est'd 1918 Oall Collect RE 9-1130

PROFESSIONAL SERVICES

INCREASE YOUR PROFITS BY APPLY-ING my accounting and Financial controls that show proper Ratios for your operations. Evaluations, Equipment revisions, and accident suit assistance also supplied. Floyd F. Campbell, Management Consultant, 821 Crofton Ave., Webster Groves 19, Mo.

APCO Standby - Peak Shaving Mixers and Plants

Safe - Simple - Automatic Design - Engineering - Construction

APPLIED ENGINEERING COMPANY Orangeburg, S. C.

PROPANE GAS PLANTS

ANHYDROUS AMMONIA PLANTS
Designed and Installed
PEACOCK CORPORATION

Sox 268. Westfield. N. J.

L. P. GAS INSURANCE

Have your agent write us about our Complete and Comprehensive Coverage for Adequate Limits of Liability at Reasonable and Normal Rates with Specialized Safety Engineering and Claim Service. Available only in Alabama, Arkansas, Arizona, Colorado, Florida, Georgia, Kansas, Louisiana, Missiasipoi, New Mexico, Oklahoma, Tenneasee and Texas.

PAN AMERICAN FIRE &
CASUALTY COMPANY
Earl W. Gammage, President
P. O. Box 1662
Houston, Texas

BUSINESS RECORDS

BUSINESS RECORD FORMS. ALL-WEATHER EZE-SNAP delivery invoices, for use when making LP gas metered truck deliveries. 1000 sets (3 part) imprinted with name, address and telephone. \$18.00 per 1000 sets. Advise make of meter. DEGREE DAY SYSTEMS, Dept. BP WOODSIDE 77, L. I., N. Y.

SERVING 20,000 PETROLEUM COMPANIES over 30 years with petroleum price cards, customer reminder Eze-Stik labels, telephone call—service order—L/P metered delivery invoices, Eze-Snap Service Form, Duraluminium ticket holders, Sort-OMatic Rack, etc. Write us for details, no obligation. DEGREE DAY SYSTEMS, Dept. BP., WOODSIDE 77. NEW YORK.

CALENDAR

All associations are invited to send in the dates of their forthcoming meetings

- Oct. 24 AGA Convention Dallas, Texas.
- Oct. 12-13—California Natural Gasoline Association Meeting—Lafayette Hotel, Long Beach, Calif.
- Oct. 16-20—National Safety Council Congress Convention—Chicago, III.
- Oct. 17—New England LPGA annual meeting—Parker House, Boston, Mass.
- Oct. 19—Maryland L.P. Gas Industry meeting—Hagerstown, Md.
- Oct. 23-24—Minnesota LPGA Fall Convention—Hatel Lowry, St. Paul, Minn.
- Oct. 24—National L.P. Gas Council Board of Directors meeting—The Homestead, Hot Springs, Va.
- Oct. 25-26—LPGA Board of Directors meeting — The Homestead, Hot Springs, Va.
- Oct. 26-27—National Home Laundry
 Conference Pick-Congress Hotel,
 Chicago, III.
- Oct. 27—NGPA southern regional meeting—Carlton Hotel, Tyler, Texas.
- Oct. 30-Nov. 1—NFPA Fall Conference
 —Hotel President, Kansas City, Mo.
- Nov. 2-3—Agriculture Petroleum Seminar—Louisiana State University, Baton Rouge.
- Nov. 6-10—New York State LPGA Service School.
- Nov. 13-15—American Petroleum Institute annual meeting—Conrad Hilton. Congress, and Palmer House Hotels, Chicago, III.
- Nov. 17—NGPA panhandle plains regional meeting—Herring Hotel, Amarillo, Texas.
- Nov. 26-27—Mississippi L.P. Gas Dealers Association annual fall meeting— King Edward Hotel, Jackson, Miss.
- Nov. 27-29, Dec. 4-8—NFPA technical committee meetings—Hotel Manhattan, New York City.
- Dec. 5—Wisconsin LPGA Convention— East Side Businessmen's Association Club House, Madison, Wis.
- Dec. 18-19 Better Heating-Cooling Council annual meeting—Hotel Delmonico, New York City.

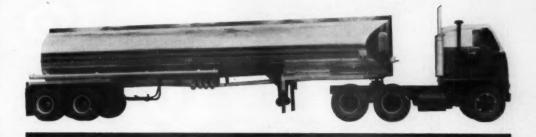
ADVERTISERS

*These advertisers carry additional information on their products in the 1961 Butane-Propane Catalog.

This advertisers' index is published as a convenience and not as part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

American Bosch Arma Corp.,	Locke Stove Co
American Bosch Div	Lubbock Machine & Supply Co.
American Liquid Gas Corp 95	Third Cover
*American Meter Co., Inc 1	
Anchor Petroleum Div.	
Mobil Oil Co 59	Master Tank & Welding Co 75
Anco Mfg. & Supply Co 30	
Arkla Air Conditioning Corp.,	Midland-Ross Corp.,
Humphrey Div	Janitrol Heating & Air Cond.
Armstrong Products Co	Div. 65, 66 Minneapolis-Honeywell Reg. Ca. Tradeline
Arps Corp 90	Minneapolis-Honeywell Reg. Ca.
	Mississippi Tank Co
Baso Div., Penn Controls, Inc 63	The state of the s
*Bastian-Blessing Co., Inc 22, 23	
*Beaird, J. B., Co	
Zenith Carbureter Div	Motorola Comm. & Electronics, Inc. —
*Birmingham Stove & Range Co —	
Blackmer Pump Co 86	*Neptune Meter Co 71
Blue, John, Co	
*Brown Stove Co	
Burroughs Corp.	
barrought Corp	Ohio Foundry & Mfg. Co
Century Gas Equipment	Parkhill-Wade 94
Marvel Schebler Prods. Div.	#Dealess Miles P. Diet Co
Borg Warner Corp 94	
Chandler Engineering Co	MIN A B 11 11 11 A
Chattanooga Royal Co 92	
Chevrolet Motor Div.	Phillips Petroleum Co — Powell Co., Wm 2
General Motors Corp	AD I Charl Tank Co. Canad Course
*Cities Service Oil Co 24	Pressed Steel Tank Co Second Cover
Coleman Co., Inc.	
*Corken's, Inc	
Cylinders, Inc 91	Dishardson Garaline Co Sid 52
	Ridge Tool Co. 6 Robertshaw-Fulton Controls Co.
D 9 NE-L1 M/- C- 21	Robertshaw-Fulton Controls Co.
Day & Night Mfg. Co 21	Grayson Controls Div
Dearborn Stove Co	Thermostat Division IE
Delaware Valley Propane Co 82	Dashastas Gauges Inc
Dixon Valve & Coupling Co 88	*Rockwell Mfg. Co.
	Gas Products Div Fourth Cover
Ellis Manifold Co 98	
Empire Stove Co	
	Samuel Stamping & Enameling Co. —
	Shell Oil Co
Fine Products Co 70	*Sinclair Oil & Gas Co
*Fisher Governor Co	*Skelly Oil Co 60
Fisk Trailer Sales	
Flamegas Detroit Corp 97	
Ford Motor Co	Water Conditioners
Grand Mater Con	Spanco Brass Co
General Motors Corp. Chevrolet Motor Div	*Sprague Meter Co
C-: MAL E E C-	- Squibb-Taylor, Inc. — Suburban Appliance Corp 90
Griffiths, E. F., Co	
Grove Valve & Regulator Co 8, 9	
	Temco, Inc
*Hamilton Manufacturing Co	- Texaco, Inc
Hannay & Sons, Inc., Clifford B. 7	7 Thermodynamics, Inc 87
Harper-Wyman Co	- Trinity Steel Co
Heil-Quaker Corp	- Tuloma Gas Products Co
Hidy-Brown Recorder Co 7	
Hones, Chas. A., Inc	2
	Union-Texas Natural Gas Corp 85
	United Petroleum Gas Co
Insto-Gas Corp	
	*VII: P C- To
Institut Monting & At- Coul Co	*Viking Pump Co 78
Janitrol Heating & Air Cond. Div.	
Midland-Ross Corp	
Johnson Machine Shop	- *Zenith Carburetor Div.
J & S Carburetor Co 9	
7 L 3 Odibiliolo Ob	Delicit Automotive Service







.... makes these transports worth more to their users.

At Lubbock Machine and Supply, custom design simply means fitting top payloads to the most exacting specifications. No mass-produced compromises or omissions. • Our record of re-orders from the same customers again and again is the result of careful planning at the customer's desk, in our own engineering department, and in our accounting department too. • If you'd like to get on the road to higher profits, let the nearest Lubbock Machine and Supply representative show you how to get more transport for your money, pound-for-pound, than your capital investment dollar ever bought before.

transports

anhydrous ammonia transports

gasoline transports

crude oil or water

transports

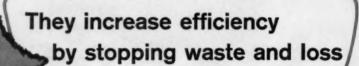
transports

stainless steel transports

LUBBOCK
MACHINE & SUPPLY CO., INC.
BOX 1589 LUBBOCK, TEXAS PO 2-5261

To contact your nearest regional representative call, wire or write our Lubbock sales office.

HOW ROCKWELL VAPOR METERS BUILD PROFITS



Are operating inefficiencies nibbling away at your profits? Take truck routing for example. With vapor meters guarding your services you can schedule deliveries on a regular, planned basis. Fills are made at your convenience. Trucking costs are reduced since expensive callbacks and emergency deliveries are eliminated.

With vapor meters you can have an efficient system of inventory control and save money by uncovering gas losses. Also metering will streamline your bookkeeping procedures by putting billings on a systematic pay-as-you-use basis. For complete details write or use the coupon. Rockwell Manufacturing Company, Dept. 78-K, Pittsburgh 8, Pennsylvania. In Canada: Rockwell Manufacturing Company of Canada, Ltd., Box 420, Guelph, Ontario.

MODERN VAPOR METERS FOR A MODERN FUEL





TEMPERATURE COMPENSATED
METERS AVAILABLE



LP-GAS VAPOR METERS

another fine product by

ROCKWEL

Rockwell cast aluminum LPG meters measure as good as they look . . . tell your customers that the accuracy of your measurement matches the quality of your service. It is to your benefit that these meters will measure accurately the low pilot flows (100 Btu's mini-pilot) found in modern appliances. The maximum capacity of 240,000 Btu's is ample for today's and tomorrow's loads.

ROCK	WELL	MANUFAC	TUI	RING	COMPANY
Dept.	78-K,	Pittsburgh	8,	Pa.	

Please send me your builetin "Go Modern-Go Metering"

Name

Street

City______State_____

